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The Role of Digital Advice in Consumer Behaviour

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D e c l a r a t i o n o f A u t h e n t i c i t y

I hereby declare that the Master´s Thesis presented herein is my own work, or fully and specifically acknowledged wherever adapted from other sources. This work has not been published or submitted elsewhere for the requirement of a degree programme.

Prague, December 13, 2017 Signature

A c k n o w l e d g e m e n t s

I would like to express my sincerest gratitude to doc. Ing. Miroslav Karlíček, Ph.D. for hours of help and guidance throughout our research. Execution of this thesis would not be possible without his great professional and personal contribution.

I would also like to express my deepest gratitude to my parents, long-life partner and the whole family for their support during my studies.
I would like to dedicate this work to my grandfather for the inspiration and guidance.

Title of the Master´s Thesis:

The Role of Digital Advice in Consumer Behaviour

Abstract:

The aim of this Master's Thesis is to describe the new and unspecified role of the Digital Advice technology in consumer behaviour within the fast-changing digital environment. This mutable environment is stimulated through the changing factors of Risk and Motivation associated with the online purchase of different product categories. Moreover, the influence of related dimensions such as Gender and Age is discussed. Research which is the first of its kind works with the worldwide unique adjusted data based on the 52 057 real-life interactions between 46 870 consumers and the Digital Advice technology. This primary dataset is further enriched by input coming from the ECID – Grid Questionnaire. Digital Advice role and its importance to the consumer was confirmed within the product categories which online purchase is associated with a higher level of the perceived Risk factor. Direct connection of other researched dimensions such as Gender and Age was not confirmed, however, a hidden mediator of product categories importance was found. The Master's thesis offers definition of the Digital Advice role in consumer behaviour and sketches its possible future impact on academic and business field through the first research of its kind.

Key words:

digital advice, guided selling, consumer behaviour, consumer journey, digital marketing

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LIST OF ABBREVIATIONS

CAGR – Compound Annual Growth Rate

CRM – Customer Relationship Management

DX – Digital Transformation

GA – Google Analytics

ICT – Information and Communications Technologies

UX – User Experience

1 INTRODUCTION

We live in the exciting and fast-changing times driven by the disruptive technologies. The number of new technologies introduced on a daily basis by agile start-ups and well-established companies is becoming overwhelming, yet required by the market. It is significantly more difficult for the academic sphere to keep up with the industry and sufficiently describe an impact which these technologies might have on the end-consumer behaviour. Yet with current sophisticated technologies, we are only at the beginning of the technological revolution.

For most of the companies which want to be successful in today's and tomorrow's world, the digital transformation process is necessary. Businesses are well aware of this critical fact. Moreover, numbers from the market speak the same language. IDC forecasts worldwide spending on the (DX) digital transformation to be $1.2 trillion in 2017, which would represent an increase of almost 18% over the previous year. Furthermore, IDC expects that market will keep this pace of (CAGR) compound annual growth rate and therefore, investment into digital transformation could be as high as $2.0 trillion in 2020 (IDC (DX) Forecast, 2017). The digital transformation as such covers multiple topics and touchpoints. Having an own website, e-shop and being active on social media are only minor parts of this never-ending process. Companies have quickly realized that consumers being active online require attention, personalized experience and assistance whenever and wherever they need. The biggest challenge therefore, seems to be solving complex consumer behaviour within this extremely fast changing world of zeros and ones.

The topic of this thesis is directly connected to the challenges stated above and therefore, can be considered as a crucial and highly relevant for the academic and business sphere. Being relatively young and yet not sufficiently described, the Digital Advice technology in a particular way substitutes shopping associate(s) in the digital space. Being able to efficiently filter thousands of products according to the needs of consumer, Digital Advice offers a high-level service and enriches consumer experience. Moreover, as will be discussed at the later point, Digital Advice might be one of the factors to shape the future form of Marketing and Business as such.

The main objective of this thesis is to describe the role of Digital Advice in online consumer behaviour within the changing environment of Risk and Motivation factors associated with the online purchase of various product categories. The thesis further focuses on other dimensions such as Gender, Age and their impact on the role of Digital Advice within the consumer behaviour during the online purchase. An additional aim is to compare the perceived need for personalized advice during the online purchase within different categories and actual performance of the technology during the real-life usage.

Since the current understanding of the Digital Advice is not sufficient, the thesis aims to build stable theoretical fundaments around the topic through the discussion of related findings from various academic sources and newest researches. Moreover, term 'consumer' its evolvement, specifics and interaction with technology will serve as a stable point for current and future description of the Digital Advice role in the consumer behaviour.

As stated in the previous description, the main research problem is connected to yet unclear and undescribed role of Digital Advice within online consumer behaviour. To solve this challenge and fulfil the main goal, thesis's research is based on two different databases. What does make the study unique is the main database, coming from the globally leading Digital Advice Technology Provider. Reliable conclusions could hardly be made without this globally exclusive data input. Additional, supportive data were taken from the ECID Grid Questionnaire run by the author. Detailed description of the research can be found in the Methodological part of the thesis and its results in the section of Findings.

The research is first of its kind in this particular field. Therefore, it is believed that thesis can advance the current knowledge in a twofold way. The thesis's research can enrich not only academic sphere dedicated to the Digital Advice topic but offer additional findings to other related fields of Digital marketing and Consumer behaviour. Moreover, the practical aim is to offer series of concrete managerial recommendation which can be leveraged in the field of digital business. The Digital Advice concept might be even more important in the future and therefore, this thesis will further try to not only describe the current understanding of the subject but actively portray its advance evolvement.

The author was always impressed by the question 'why do people do what they do?' This initial obsession with finding the right answer led him into his sympathy towards the Marketing, Psychology and ultimately field of Consumer behaviour. As a hobby, he studied various courses of Behavioural economics, Consumer behaviour and have been doing other related activities which developed his knowledge and interest within the topic. Since 2016 he has been working for a young technology company within the field of Digital Advice which offers solution built on premises of behavioural economics. With the company, he spent certain time in the San Francisco Bay Area also known as the Silicon Valley, where he found passion for the field of new technologies. Especially for the future development and impact which these technologies might have on Consumer behaviour. The author is currently working as a Partner & Innovation Manager at the Digital Advice provider, being responsible for the strategic alliances with solution and technology partners. This thesis represents a unique combination of elements which he does, enjoys and wants to do in the future. It is also a confession from author's journey to finding the right answer to the initial question.

2 LITERATURE REVIEW

2.1 THEORETICAL FUNDAMENTS OF THE DIGITAL ADVICE

Since the purpose of this Thesis is to define the Digital Advice role in consumer behaviour, it starts with a deeper understanding of the Digital Advice topic. Due to the premature age of this relatively new area, its theoretical definition has not been yet fully discovered and therefore, there is only a limited amount of trustworthy knowledge about the topic.

Built on the theoretical premises, Digital Advice is a true representative of innovative technologies running behind the speed of proper academic analysis. In order to build a strong foundation upon which the Digital Advice definition can be built, thesis begins with the term evolvement and its current understanding.

Roots of the Digital Advice can be found in the field of personalization. According to Imhoff, Loftis and Geiger (2001), "personalization is the ability of a company to recognize and treat its customers as individuals through personal messaging, targeted banner ads, special offers on bills, or other personal transactions" (p. 467). Another definition is offered by Wind and Rangaswamy (2001), "personalization can be initiated by the customer (e.g., customizing the look and contents of a Web Page) or by the firm (e.g., individualized offering, greeting customer by name etc.,)" (p. 15). Based on these fundaments, Digital Advice recognizes and creates a unique interaction with a consumer and therefore, 'personalize' his or her journey.

As already mentioned, term Digital Advice itself can be hard to define. Lester, Branting and Mott (2004) using a related term Conversational agent which they define as, "agents which integrate computational linguistics techniques with the communication channel of the Web to interpret and respond to statements made by users in ordinary natural language" (p. 1). The authors mention that there is a various application of such an agent since they can be used in the various scenarios within the enterprise. The numerous scenarios induce applications such as Customer service, Help Desk, Website Navigation, Guided Selling and Technical support. The conversational agent and data flow within the system is displayed in the Scheme 1.

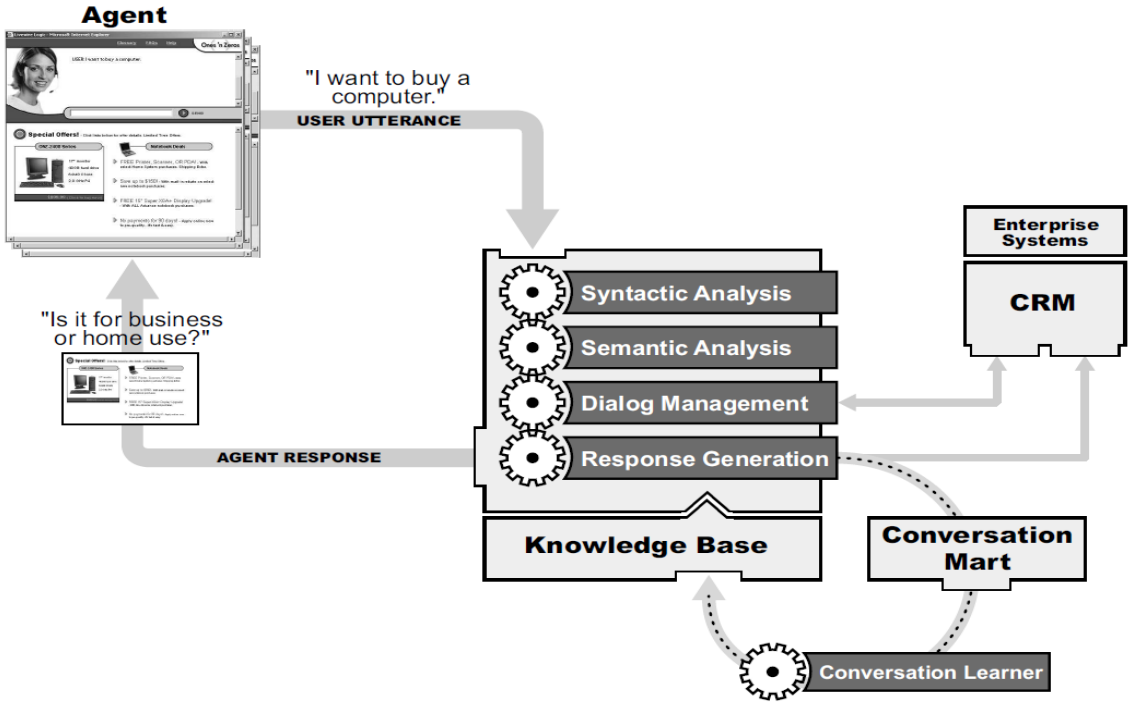
It is critical to point out that thesis's key focus will be placed on the term Guided Selling. Guided Selling can be defined as "the solution providing answers and guidance in the sales process, particularly for complex products being sold to novice customers" (Lester et al., 2004, p. 3). It is crucial to distinguished between these terms. While Guided Selling focuses on selling as an activity, Digital Advice much broader term focuses on user's needs, wants or problems and consists of sub-parts such as Guided Selling, Guided Trouble-Shooting and other supporting activities which guiding user to the right solution within the digital environment. The reason why and how consumers seek for a professional advice in the digital environment, is the backbone of this thesis and will be further examined in part dedicated to the consumer behaviour topic.

While working with the definition of Digital Advice, term customer relationship management also known under the abbreviation CRM has to be mentioned. According to

Lester et al., (2004) CRM emerged three different types of applications: marketing, sales force automation which focuses on a solution, customer service and support (p. 3). While conversational agents' technologies clearly belong to the third group, Digital Advice and its subpart Guided Selling solution are on the intersection of marketing, customer service and support parts.

Process of the conversational agent recommendation system and its integration is described by the Lester et al., (2004) in the Scheme 1. As the first step agent needs to interpret the input from the consumer. Input can be either in the form of text (this scenario was described by the study from the author) or in the click-based choice (option used by most Digital Advice technologies) and by voice (option used by voice conversational agents such as Alexa, Cortana. Google Home, etc.). The principle, however, remains the same, agent interprets the input from an entity usually represented by customer and determines how to act. Action should be determined by the current goal of the agent and information in databases which it has accessible, such as information about a product or service. As the last step, an agent should respond with a proper action. In the Digital Advice understanding, proper action means to offer the best product/service or solution based on user's input which could be presented by needs, wants or problems. Conversation Learner and CRM system displayed in the Scheme 1., are additional parts which can but does not have to be used.

***Scheme 1**: Data Flow in a Conversational Agent*



***Source:** Lester et al., (2004, p.5)*

"With large-scale deployments that deliver high volumes of simultaneous conversations, an enterprise can employ conversational agents to create the cost-effective solution to its increasing demands for customer service, guided selling, website navigation, and technical support" (Lester et al., 2004, p. 15). Because of the significant value which these agents providing, the authors believe that conversational agents will be part of the future and support various application in business enterprises, education, government, healthcare and entertainment.

The thesis will partly examine this statement and try to find out more about the current role of Digital Advice in the Consumer Behaviour. Same as the previous conclusion from the Lester et al., (2004), this thesis should not only describe the current understanding of the topic but upon knowledge gathered from the Literature review and Findings section try to sketch its possible evolvement, role and importance in the future.

2.1.1 The Role of Digital Advice in the Digital Marketing Understanding

"*The new age of the marketing is mirror of the new world we are living in*" (Kotler, Kartajaya & Setiawan, 2016, p. 6)

Once defining an object, this Thesis will further offer a proper definition of the environment where the object happens to be placed. Following the same logic, this section closely examines Digital marketing environment which influences and as it is believed, is influenced by the Digital Advice concept.

Digital marketing is also known under terms as E-marketing or Internet marketing. To clarify the problematic, Thesis distinguishes between these terms. "E-marketing can identify, anticipate and satisfy customer needs efficiently (Chartered Institute of Marketing)" (Baker, 2003, p. 638). As a part of E-marketing, term E-Commerce should be further defined. Electronic commerce, well recognized under term E-commerce is according to Baker (2003) a broader term than just buying and selling things online (p. 637). As Baker (2003) indicates e-commerce involves much more and should be understood as, "all electronically mediated transactions between an organization and any third party" (p. 676). Definition of E-commerce would be then as follows, "the sharing of business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks (Zwass, 1998)" (Baker, 2003, p. 638).

An alternative term to E-marketing is 'Internet marketing' which can be defined as "the application of the Internet and related digital technologies to achieve marketing objectives (Chaffey et al., 2003)" (Baker, 2003, p. 639). The author continues that in practise, Internet marketing is understood more as a subset of E-marketing that includes the use of the company website and promotional technique.

An extensive definition of Digital marketing is offered by Thomas and Housden (2017),

"Applying digital technologies which form online channels to market; To support multi-channel marketing activities aimed at achieving profitable acquisition and retention of customers; Through developing planned approach to improve customer knowledge (of their

profiles, behaviour, value and loyalty drivers), then delivering integrated targeted communications and online services that match their individual needs." (p. 4)

Thomas and Housden (2017) point out that it is mainly technology what drives digital marketing. Technology also allows scale Digital marketing approach through the different channels described by the term 'multi-channel marketing' which emphasizes that digital marketing does not occur in isolation. According to authors, online processes should be part of the whole buying process from pre-sales to the post-sales stage. They also stress out the importance of the proper integration of different channels which as they believe, makes marketing initiatives more effective. The last part of the definition relates to the customer-centric design which has gained in the recent years significant importance. It shows that companies should listen to their customers and their marketing should be based on knowledge of customers' needs which are further developed by researching their behaviour to meet an ultimate goal and deliver tailored digital communication (p. 4 – 7).

According to Kotler et al., (2016) the Customer-Centric Design was the essential for the Marketing (2.0) and created an important shift from the product-driven Marketing Design (1.0). Ultimately, on market, in recent years the Human-Centric design (3.0) which understands customers as the human being with minds, spirits and hearts has been seen quite often (p. 11). This is also pointed out by Richardson, James and Kelley (2015) who mentioned that customer nowadays, has an almost unlimited amount of possibilities of what and where to buy. In such an environment, marketers must ask themselves, "Why would clients buy their product instead of those of competitors?" (p. 3). Kotler et al., (2016) add that Human-centric dogma which helps companies differentiate was the only dogma followed by many marketers until the recent years when the power of the Internet and the ICT technologies became a non-longer ignorable element in the business world (p.11).

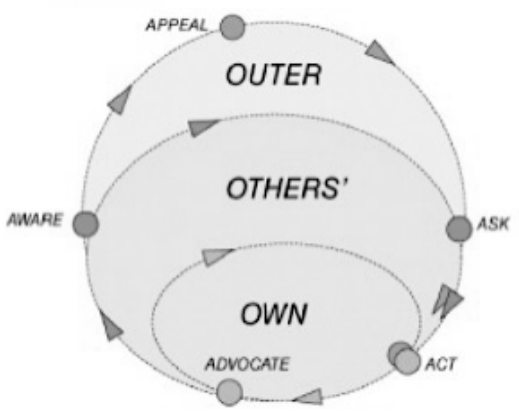
According to Kotler et al., (2016) Online business will never completely replace the offline business. Same the online or as authors call it 'new wave' of marketing will never ultimately replace the offline marketing. In order to deliver the best customer experience, these two forms need to coexist. The future of the marketing will be a seamless mix of online and offline experiences across customer paths. "In a highly connected world, a key challenge for brands and companies is to integrate online and offline elements into the total customer experience" (Kotler et al., 2016, p. 26). It will be more about Technology itself touches both the offline and online space, making a unique offline-to-online bridge (p. 11-26).

Kotler et al., (2016) continue that Traditional marketing often describes consumer path by the AIDA scheme. The scheme stands for attention, interest, desire and action. This framework was introduced by E. St. Elmo and was one of the traditional ways how to describe consumer path. AIDA has developed over the time to its current versions introduced by Derek Rucker and offered by Kotler et al., (2016) who instead of AIDA introduced the five A's scheme which five As stands for aware, attitude, ask and act again. The five A's scheme introduced by Rucker reflects nowadays consumer path on a sufficient level (p. 45).

For purposes of this thesis 'Ask stage' is the most important, since this is the stage where consumers look for a relevant answer or advice. According to Kotler et al., (2016) this stage is known for its complexity caused by consumer being active in offline (physical) and digital (online) world simultaneously. Companies need to reflect this fact in order to meet consumers' expectations and stay persuasive over the multiple channels. It is completely necessary to have the presence in one or all of these channels (p. 45).

It seems essential that consumer is triggered by the conversation with a brand or a product. Digital Advice represents a suitable tool for initial engagement with novice users. As Kotler et al., (2016) explains, when the consumer's engagement is rather low, he or she can be easily distracted and exit the process. According to the authors, the key customer impression of the Ask stage is 'I'm convinced'. The final decision of customers is then usually the combination of three elements: own influence, other's influence, and outer influence (p. 49).

***Scheme 2**: The O Zone across the Customer Path*



***Source:** Kotler et al., (2016, p. 51)*

As the Kotler et al., in the Scheme 2. above indicate, outer layer plays its irreplaceable role in the decision-making process. In this stage, the consumer seeks advice and in general, absorbs as many information as possible (p. 51). While speaking about the O Zone scheme, the Digital Advice and its subpart Guided Selling would be perfect representatives of the outer group. Kotler et al., (2016) add that this type of influence usually comes from the external sources reaches customer first and is then followed by the influence of others. Although the influence of others is usually the most important, it is the interaction between other's and outer which shape their own opinion. Naturally, the importance of these 3 types varies among different types of consumers. Moreover, the authors mentioned, the industry itself might define which type is the most influential (p.51). Customer, industry, and product specifics are crucial factors while discussing the role of Digital Advice within the consumer journey.

According to Kotler et al., (2016) the future of the marketing will be the seamless mix of online and offline experiences across multiple customer paths what authors define as follow, "in a highly connected world, a key challenge for brands and companies is to integrate online and offline elements into the total customer experience" (Kotler et al., 2016, p. 26).

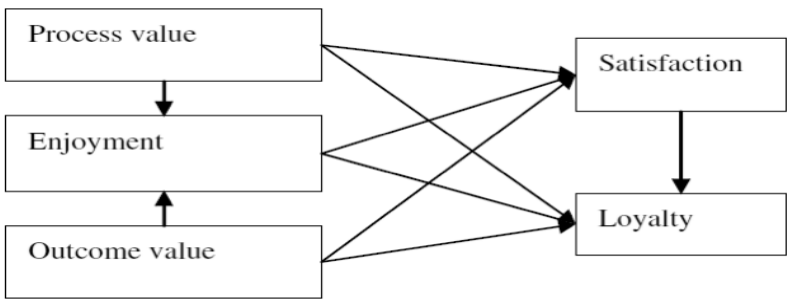
The theoretical importance of Digital Advice can be found in the Ask stage while working with the five A's scheme where consumers actively looking for the support. Once integrated properly Digital Advice is representative of the outer group which besides others influences the final opinion of the user. As mentioned before, the role of Digital Advice might vary among different consumers and industries. As can be seen, Digital Advice should be further understood as a part of the process which at the end has an impact on consumer behaviour.

This finding is additionally supported by Shun and Yunjie (2006), who call for distinguishing between shopping value (process) and product value, as they believe, this is the crucial point for the understanding of online shopping behaviour and user experience (p. 274). Shun and Yunjie (2006) explain the difference as following, "shopping value is a consumer's evaluations of a shopping process itself, rather than the product" (p. 274). It is important to point out that consumer is primarily motivated by acquiring the product or services which would satisfy his or her needs or wants, but the whole outcome and satisfaction does depend on multiple factors, not the only product itself. "While product value takes the product as the unit of analysis, shopping value looks at a retailing outlet" (Shun & Yunjie, 2006, p. 275).

Shopping value has according to Shun and Yunjie (2006) a significant importance in the field of E-commerce. The authors mentioned that online competition is less based on quality since the online products are usually in the same standard. Price seems to be an option to compete, however, any loyalty system which could represent a tricky mechanism since price seeking consumers would leave at the first chance. To avoid excessive price competition, subjects could use some other forms of differentiation strategies, for example, offering a better shopping value. In the terms of E-commerce, better shopping value can be achieved by better quality of information system, responsiveness, and other techniques (p. 279 - 280).

Shun and Yunjie (2006) proposed the three component models displayed on the Scheme 3., below which consist of the outcome value, process value and enjoyment. The outcome value covers product value where authors also count value of service outcomes. The process value consists of the saving of the time resources while searching for the product or service and easiness of ordering and receiving the product at a specific online store. The last component is enjoyment of the store (web) which should not be confused with the enjoyment itself (p. 275 - 280).

***Scheme 3**: Three-Component Model*



***Source:** Shun & Yunjie, (2006, p. 275)*

Shun and Yunjie (2006) research provides evidence which confirms the well-recognized importance of outcome value to consumer satisfaction but also demonstrates significant, almost equal impact on the process value. Moreover, process value has according to the authors even bigger impact on consumer loyalty in online shopping contexts (p. 278). "To the practitioners, this study shows that offering process value to customers can be a sharp competition tool" (Shun & Yunjie, 2006, p. 280).

Research done by Shun & Yunjie is crucial for the theoretical understanding of Digital Advice role which primary purpose is to make the purchase process easier and more enjoyable. Due to previous theoretical findings, we can confirm the importance of Digital Advice to online customer experience and the field of Digital Marketing.

2.2 APPROACHES TO MODERN CONSUMERS & THEIR BEHAVIOUR IN THE DIGITAL AGE

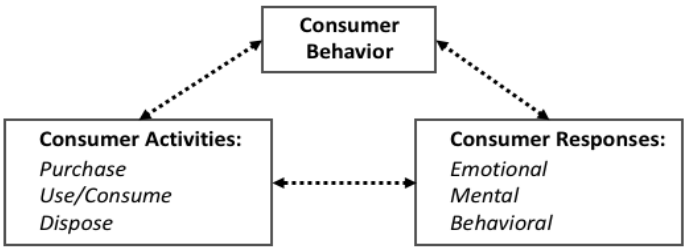
Once there are stable fundaments of the theory behind the Digital Advice topic, the thesis broaden discussion by description of the Consumer Behaviour topic.

Starting with the definition, "the Consumer behaviour reflects the totality of consumers' decisions with respect to the acquisition, consumption, and disposition of goods, services, activities, experiences, people, and ideas by (human) decision-making units [over time] (Belk, 2010, p. 715 – 734)" (Hoyer, Maclnnis & Pieters, 2013, p. 25).

Another definition is offered by Hansen, Flemming and Sverre (2010) "Consumer behaviour compromises at least all activities related to purchasing, consuming, and exchanging information about brands, products and services. These actives occur with high frequency during most or all of the time. It therefore makes sense to look at consumer behaviour as a particular class of human behaviour" (p. 29).

Kardes, Cronley and Cline (2015) offer slightly adapted definition "Consumer behaviour entails all consumer activities associated with the purchase, use and disposal of goods and services, including the consumer's emotional, mental, and behavioural responses that precede, determine, or follow these activities" (p. 7-8).

***Scheme 4**: Consumer Behaviour Process*



***Source:** Author's Illustration based on Kardes et al., (2015, p.8)*

Since all the definitions presented are rather complex they will be closely examined in the following paragraphs below.

According to Kardes et al., (2015) categorization of Consumer behaviour by the type is mostly used to find out responses which differ among activities introduced in the Scheme 4. As authors mentioned and made clear, the Consumer behaviour which is also called the Buyer behaviour is not only about the simple act of purchase but about all the activities prior, during and after the purchase (p. 9). Given the character and limitation of the thesis, the focus will be placed mainly on the consumer activities connected to the purchase. Term consumer, not customers will apply since the post-purchase process might heavily influence consumer behaviour as well as the understanding of the topic.

According to Kardes et al., (2015) purchase activities are closely connected with consumer acquiring process of goods and services. This includes everything done prior and leading up to purchase, such as searching for and evaluating information about the product or service or choosing a place of purchase. The authors mention other factors such as the atmosphere of the store, website design or amount of time consumer invests to the purchase decision (p. 9). These factors are crucial while defining the role of Digital Advice in consumer behaviour.

To properly understand how the purchases activities are done, term 'consumer' as the most important entity of every purchase activity should be described. According to Kardes et al., (2015) the consumer can be either individual or organization. Since the thesis focuses on consumer behaviour of an individual, it will avoid complex description of the organizational behaviour. An individual consumer purchases goods and services with the aim to satisfy his/her needs respectively wants or satisfy the needs and wants of others (p.8). The fact that consumer purchase often includes purchases for others such as paying bills for household or buying a gift for a beloved one is crucial for the boundaries of this research. The authors continue that consumers can truly come in all social backgrounds, ages and life stages, whether the consumer is a young kid begging his father for an ice-cream or an older couple choosing their holiday destination online (p. 8). Hoyer, MacInnis and Pieters (2013) comment that individuals can take different roles, such as information gatherer within a certain group of people, for example, the family (p. 27).

The complexity of consumer description is even higher in the digital age. In this world, the consumer is connected across multiple touchpoints which naturally means distraction. "An average human attention span has dropped from 12 seconds in 2000 to 8 seconds in 2013 (National Centre for Biotechnological)" (Kotler et al., 2016, p. 27). What is most crucial for the thesis is that consumer attention spam shrinks and this has a negative effect on consumer ability to focus and make decisions.

Authors continue that while being distracted, consumer prefers to follow the crowd and does the final decision based on the consumers' experience of others. This is boosted by a lower level of trust that customers put into advertising and the limited time they have to compare quality and price. "This is the portrait of the future customers – connected yet distracted" (Kotler et al., 2016, p. 27).

2.2.1 Specifics of Modern Consumer in the Digital Age

Being, the centre of this thesis, consumer must be understood as the complex entity with many dimensions and specifics. As multifarious as segmentation process in marketing can get, age and gender usually are the key criteria used. These two dimensions will be also further examined in the Findings section, however, at this point, additional explanation of the consumer's specifics and their connection to the role of Digital Advice in consumer behaviour is needed.

Hoyer et al., (2013) comment that there is a different interaction between certain age groups with different technologies. The fact is that same age groups share certain life experiences which shape their behaviour (p. 332).

As Hoyer et al., (2013) continue, the first age group to mention are the Millennials. Consumers who were born between 1980 and 1994. They are also known as the Generation Y. Millennials have grown in the internet era are media and tech-savvy. They are also more likely to own laptop or tablet (p. 332). Lissitsa and Kol (2016) add that among Generation Y online shopping increases with age. For the Generation Y, brands have to become part and add value to their everyday life (p. 310-311). "In the purchase decision Generation Y, puts greater emphasis on socialization agents (family, peers) through social media sites, which are largely populated by this generation (Mangold & Smith, 2012)" (Lissitsa & Kol, 2016, p. 310-311).

"Generation X are individuals who were born between 1965 and 1978" (Hoyer et al., 2013, p. 333). Lissitsa and Kol (2016) mention that it is very important for marketers to invest in this group (p. 311). "Since Gen Xers want retailers to provide a personalized brand experience, they would like to be offered high-quality products, unique personalize offers with a greater perceived value (Peralta, 2015)" (Lissitsa & Kol, 2016, p. 310-311).

"Baby boomers are individuals born between 1946 and 1964" (Hoyer et al., 2013, p. 332). As the authors continue this quite diverse group share many common experiences. Most of them grew up before the TV and with the age tend to watch it more. What is, however, most important is that Baby boomers tend to spend time using the technology and spend time on the social media (p. 332).

According to Hoyer et al., (2013) the last group which tends to use the Internet and other digital technologies very occasionally are Elderly (p. 332). "According to the study, there is only minor portion of elderly who use the Internet in their daily lives, and the outcomes also revealed that the elderly by large have no experience in using the Internet at all" (Loipha, 2014, p. 108).

As could be seen from the text above, there are certain differences which should be further examined from the perspective of the Digital Advice concept. This might bring more light to the process of online decision making of different Generations and support understanding of the Digital Advice role connection the factor of Age.

Another dimension of consumer's specifics which is also a subject of thesis' discussion is dimension of Gender. Kotler et al., (2016) cited Gray (1992) who used a metaphoric well-known sentence which also became the name of Gray's book "men are from Mars, women are from Venus" (p. 32).

According to Kotler et al., (2016) there are three key roles that women play in the purchase process. Women are so-called information collectors. The authors furthermore mention the research from Barletta (2006) who found out that woman's decision-making process differs from a man's. Kotler et al., (2016) say that man's path-to-purchase is straightforward and short, while a woman's looks like a spiral, often going back to the previous step to collect new information and rethink what is the best next step (p. 36).

Kotler et al., (2016) continue that whereas women, in general, spend hours by doing research online comparing price, reviewing quality, men usually limit searching activities and go directly after what they want (p. 36). Lissitsa and Kol (2016) comment that in both Generation X and Y are males more active in purchasing online than females. The authors continue, at the edge of political correctness with results which indicate that males' domain is electric appliances which as the multiple research shown, they buy more than women do (p. 309).

Besides a higher level of research, Kotler et al., (2016) comment that women also seek for the opinions of their friends and family. They in general converse more about the brands. As mentioned the ultimate goal for men is getting things done, while for women it is to find the perfect product, perfect service or solution (p. 36). The authors add that women usually pay extra attention to all the information, and summarize it for the others (p. 36).

Kotler et al., (2016) continue that women are also considered to be more holistic shoppers. That means they go through the several touchpoints in their path-to-purchase and are naturally are exposed to multiple factors for consideration. They are the customers with various consideration such as emotional benefits, prices to make the ultimate decision whether a product is worth the investment. There are special categories where women consider product value for the whole family. Women also search for less popular brands since they might have a better value for money proportion (p. 33).

Because of all the facts mentioned above women are more confident shoppers while facing final purchase decision. Consequently, Kotler et al., (2016) add that women' influence at home and work but also at purchasing decision is growing. Regarding the decision-making process, authors mention the Pew Research Center report (2008) which showed that women are more dominant in the 41% of U.S. households, while men were more dominant in the 26% of the other U.S. households. In remaining 23% households was decision making equally split (p. 33).

Crucial input to the topic is presented by Doong and Wang (2011) who studied males and females' perception of agent- base recommendations in internet-based selling. Doong and Wang (2011) study "has empirically demonstrated that at the information acceptance, level, women, rather than men, feel that it is more important to perceive recommender system advice to be useful before they are willing to consider this advice in their current shopping"

(p. 602). The authors also revealed that by designing recommender system advice with different argumentation forms and spokesperson types, consumer perceptions of argumentation quality and source credibility may increase and ultimately lead to a stronger online purchase intention (p. 602).

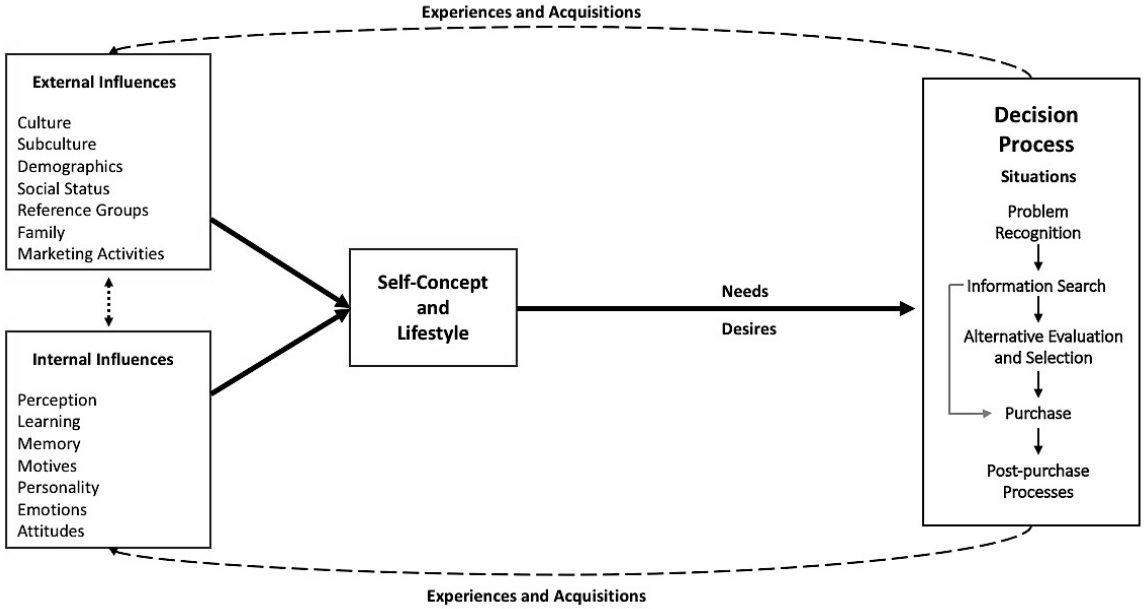
According to Kotler et al., (2016) the most influential segments in the digital era are so-called Young Women Netizens – YWN which means young as early adopters and netizens as a citizen of the digital space (p. 29).

The research of this thesis, will seek strong theoretical background in the sections above and try to describe the impact of the modern consumers' specifics in the role of Digital Advice.

2.2.2 The Role of Digital Advice in the Consumer Decision-Making Process

"Consumer behaviour involves understanding whether, why, when, where, how, how much, how often, and for how long consumers will buy, use, or dispose of an offering" (Hoyer et al., 2013, p. 25). As was mentioned before, while examining the consumer activities, the main focus will be placed on the purchase activities characterized by the Decision-making process.

***Scheme 5**: Consumer Decision Process*



***Source:** Author's Illustration based on Hawkins & Mothersbaugh (2010, p. 466 -467)*

The Scheme 5., represents a common scheme of consumer decision process which can be found in more or less same form in other publications related to this topic. As Hawkins and Mothersbaugh (2010) indicates, consumer decision-making process is multidimensional and complex and is influenced by external and internal influences as well as self-concept and lifestyle of a consumer (466 - 467). Due to limitations of this thesis, it will not be possible to describe all of the groups and subgroups displayed in the Scheme 5. It is, however, important to keep them in mind while describing role of Digital Advice. In the next pages of the thesis, the stages of Decision-making process and their connection to the topic will be described.

Following the Scheme 5., the Problem recognition is the beginning of consumer Decision-making process. According to Solomon, Bamossy, Askegaard and Hogg (2006), "Problem recognition occurs whenever the consumer sees a significant difference between his or her current state of affairs and some desired or ideal state" (p. 263). Hoyer et al., (2013) explain that ideal stage can be described as the way the consumer wants things or situation to be and actual state is as the consumer's perception of the current situation (p. 185). Hawkins and Mothersbaugh (2013) point out that it is important to know that consumer's perception of how the situation is right now is subjective reality (p. 502).

Hawkins and Mothersbaugh (2013) continue that the level of how an individual wants to resolve the problem depends on a relative importance of the problem and magnitude of discrepancy between ideal and current state. The relative importance of a problem is critical, and only those problems with relatively high importance are likely to be solved. If one of these conditions is not met consumer might not proceed to the next stage which is information search (p. 502). "In general, importance is determined by how critical the problem is to the maintenance of consumer's desired lifestyle" (Hawkins & Mothersbaugh, 2013, p. 502).

Once the problem is recognized consumer naturally starts with the second stage which is information search. "Information search is the process by which consumer surveys his or her environment for appropriate data to make a reasonable decision" (Solomon et al., 2016, p. 265). Hawkins and Mothersbaugh (2010) point out that information search should not proceed as a costless activity. On contrary, searching for information involves various mental and physical activities, takes time, energy and consumer must often giving up other desirable activities. Therefore, it is important that benefits of such an activity outweigh its cost (p. 518). Solomon et al., (2006) further define that the main information sources are internal and external search (p. 293).

As the Solomon et al., (2006) continue, the Internal search is usually the first step in problem-solving stage since the consumer is working with his/her own memory (p. 293). Internal search can be defined as "the process of recalling stored information from a memory" (Hoyer et al., 2013, p. 188). The authors continue that consumers have stored a variety of information, past experiences and feelings which can be recalled when making decision (p. 188).

Hoyer et al. (2013) mention that sometimes can consumer form a decision which is based only on the internal search. There are however, other occasions where additional information may be required. In such situations, consumer engages in the External search of the resources from outside (p. 194). External search can be defined as "process of collecting information from outside sources, for example, magazines, dealers, ads" (Hoyer et al., 2013, p. 194). The authors continue that consumer use external search mainly to collect additional information about the brand or product and that this type of search can be divided into pre-purchase and ongoing search. The pre-purchase search is rather an automatic response to the problem recognition activation. The online pre-purchase search is nowadays common due to consumers being active in the digital environment. The ongoing search occurs regularly even without the problem recognition being activated. The authors offer an example of a consumer who constantly visits automotive websites or online automotive magazines because of his or her attraction to this topic. The knowledge acquired can be then used during the purchase (194 - 195).

Hoyer et al., (2013) continue that degree of external search is usually limited even for the purchases which might be by consumer considered as an important one (p. 195). Hoyer et al., (2013) explain, "with more consumer shopping online, search activity is increasing because online sources are very convenient. Yet consumers' internet search patterns can differ depending on product type. Specifically, when researching the experience goods (products that cannot easily be evaluated until and after purchase and use), consumer tend to dig into the details and spend some time on each web page" (p. 198).

Fact that consumer might engage in internal and external search activities at the different levels while doing the purchase, is crucial for the key research problem of this thesis. The main goal of the thesis is to find out the role of Digital Advice in Consumer Behaviour. The theoretical definition and further positioning of the Digital Advice within the five A's process were already offered. It is, however, crucial to explain the role and importance of Digital Advice within the stages of Decision-making process. Its role would be most accurately placed in the Involvement and Search stage where consumers actively seeking for more information to do the right purchase decision. To find an answer how important Digital Advice in the digital environment is and what role does it play, the thesis focuses on a further research of the factors which influence involvement and searching processes of consumers. This section, therefore, has a great importance and serves as a backbone of the thesis.

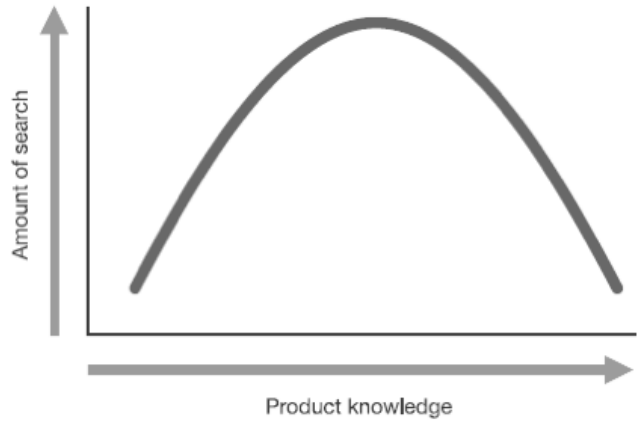
To describe different level of involvement and search activities Punj & Staelin (as cited in Solomon et al., 2006) offer the general rule for the level of the search effort, "search activity is greater when the purchase is important, when there is a need to learn more about the purchase" (p. 270). Hoyer et al., (2013) add that during the internal search, consumers have limited capacity and ability to process all the information, simply because memory traces decay over time and consumers are then able to recall only limited quantity of information. Consumers will, however, tend to use their cognitive processes and recall more information once the involvement or perceived risk is higher (p. 188).

Motivation and perceived Risk are one of the key elements of the thesis and therefore, next paragraph is dedicated to their close examination.

Involvement is closely connected to the consumer motivation. Motivation can be defined as "inner state of arousal that provides the energy needed to achieve a goal" Hoyer et al., (2013, p. 45). The authors continue that motivated consumer is ready and energized to engage in the goal-relevant activities which simply means that he or she is ready for processing information or making a decision. The external search will be according to the authors more extensive as the motivation to process information increases (p. 188).

The consumer involvement is according to Solomon et al., (2006) affected by consumer's prior expertise in the product. He points out that novices and experts use significantly different procedures during the decision-making (p. 270). The Graph 1., below, further explains the relationship between knowledge of the product and amount of search is done by the consumer.

***Graph 1**: The Relationship between Amount of Information Search and Product Knowledge*



***Source:** Solomon et al., (2006, p. 271)*

As the Graph 1. indicates the biggest amount of search is done surprisingly by the moderate users. What does seem to be logical is a limited amount of searching time usually spent by experts – consumers with extensive product knowledge. As Solomon et al., (2006) comment, these types of consumers tend to engage in a selective search which simply means that they are efficient while searching for the right product (p. 271).

What might however, seems surprising is amount of search done by novices – consumers with a very limited or no knowledge of the product. Solomon et al., (2006) define the reason as follows, "people with very limited knowledge and expertise may not feel capable of searching extensively. In fact, they may not even know where to start" (p. 270). Novices usually rely on the opinions of others or 'non-functional' attributes such as price or brand name which helps them navigate between various alternatives.

Digital Advice is primarily constructed for the Novices and can be very easily used by this group. The consumer despite being new to the product category can simply state his or her needs/wants and easily find the best product or service. There is no product knowledge required which might help overcome the initial question, '*Where to start?*'.

Another rule mentioned by Solomon et al., (2006) is that "purchase decision that involves extensive search also entail some kind of perceived risk or belief that product or service has potentially negative consequences. Perceive risk may be present if the product is expensive or is complex and difficult to understand, or if the brand is unfamiliar (Fedorikhin & Cole, 2004)" (p. 271). The authors mention that consumer tends to collect more information as the factor of perceived risk increases (p. 58).

Hoyer et al., (2013) comment research done by Alden, Stayman and Hoyer (1994) who said that perception of risk can differ in various cultures. An example is a high level of risk which is associated with products within less developed countries, where the quality of products is usually worse (p. 58). Due to limited capacity of the thesis, other factors such internal influences will not be discussed. Hoyer et al., (2013) further mention research by Jacoby & Kaplan (1972) who listed six types of risk that consumer might perceive: performance risk, financial risk, physical (or safety) risk, social risk, psychological risk and the time risk (p. 58).

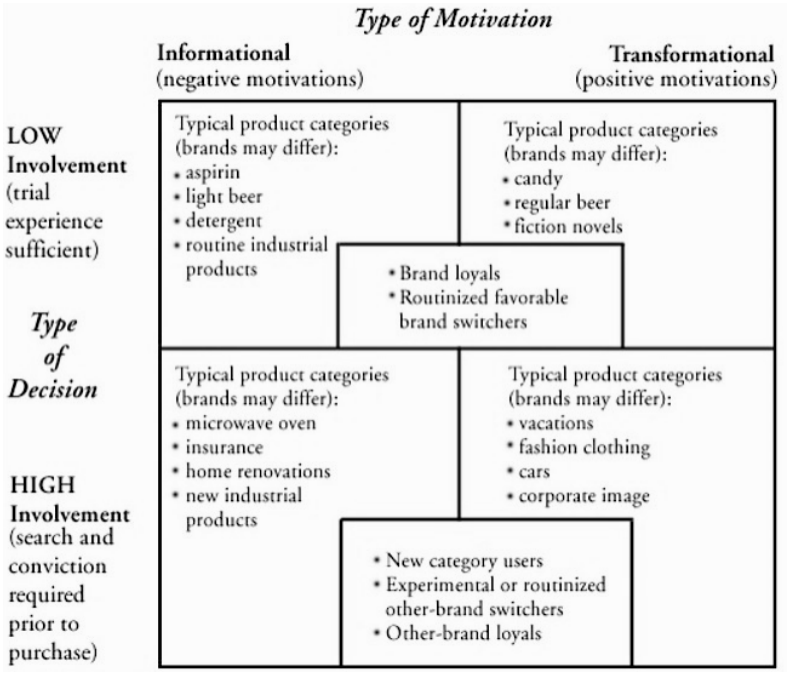
Hoyer et al., (2013) distinguish between high or low involvement product. The authors mention that some researchers use the amount of risk to classify which products belong to one of these categories. High-risk products are perceived as something uncomfortable or threating. Consumers are, therefore, motived to engage in various behaviours and information-processing activities, in order to resolve or at least reduce this risk (p. 59). Kotler et al., (2016) comment that risk factor and industry characteristic influence where is customer planning to purchase a product or service. As an example, they mention an industry where low purchase risks – which is mostly characterized by a lower price of a product, has usually shorter and simpler path. On contrary, an industry with more expensive products which relate to a higher purchase has usually longer and more complex customer path. Another factor which has an impact on customer path is the brand. Bigger brands tend to have more touchpoints and wider range of interaction possibilities than smaller brands with a limited number of touchpoints (p. 67).

Previous theoretical findings indicate that Digital Advice becomes more important and more frequently used by consumers once a level of perceived risk associated with the product category is high. The problematic of motivation and risk is in an extensive way examined by many researchers. The most important theories and their purpose to this thesis will be introduced within next subcategory. It is crucial to point out that research part of this thesis is partly based on the premises stated below.

2.2.3 Changing Factors of Motivation & Risk and Their Impact on the Digital Advice Role

One of the first well-known theories which studied the question of motivation and risk was formed by Rossiter and Percy (1987) which was further discussed and examined by Rossiter, Percy and Donovan (1991) in their paper "A better advertising planning grid". As authors mentioned the main purpose of the paper was to present a better version of the first Rossiter-Percy planning Grid and at the same time discuss the limitation of the FCB Grid (p. 11). The FCB Grid will not be due to its limitations and the limitations of this thesis further discussed. Rossiter et al., (1991) argued that FCB grid does not distinguish between product-category choice and brand choice. It simplifies a distinction between motives in terms of thinking and feeling, such as felling does not distinguish between positive and negative emotions or the thinking is confused with involvement. The authors also argue that FCB cannot be fully used by marketers in the advertising strategy (p. 20).

***Grid 1**: The Rossiter-Percy Grid*



***Source**: Rossiter et al., (1991, p.13)*

For the reasons mentioned above, the newer version of Rossiter and Percy Grid (1991) displayed on the Grid 1., will be subject to the thesis's discussion. At the first sight, there is a lack of risk metric. The authors, however, define involvement as the risk perceived by a typical audience member. If for a target audience a perceived risk is rather low, they use low involvement which can be by non-scientific term describe as 'try a brand/product and see'. Once the decision becomes riskier consumer engages in the additional information processing. The Rossiter and Percy concept of motivation takes into account positive and negative motives and with them naturally associated positive and negative feelings (p. 13 - 17).

Negative motives are in the Grid defined as informational motives which are in general, negatively reinforcing the purchase motives. Among negatively-oriented motives are listed following ones: problem removal, problem avoidance, incomplete satisfaction, mixed approach-avoidance, normal depletion (Rossiter et al., 1991, p. 17).

Positives motives are defined as transformational motives and as the authors reveal this term was borrowed from Wells (1981). Transformational motives are positively reinforcing purchase motives. The authors listed three positive transformational motives: intellectual stimulation, social approval and sensory gratification. Positives motives always generate positive feelings, negative motives, however, might also induce positive feelings. The authors further explain that these motives operate independently from the degree of involvement towards the purchase process (Rossiter et al., 1991, p. 17).

Interesting findings are offered by Wu (2013) who studied the Role of product/brand type in previsit website intention through the Rossiter-Percy Grid application. Wu (2013) found out that,

"online consumers display low previsit intentions for low-involvement products, their limited attention focuses on peripheral, non-product features and feelings contained in the Website, their brand information processing is low, and the effect of previsit intentions on brand attitude change operates through a peripheral route to persuasion. In contrast, when online consumers display high previsit intentions for high-involvement products, their strong attention focuses on central, product-related features and information, their brand information processing is high, and their brand attitude change goes through a central route to persuasion." (p. 19)

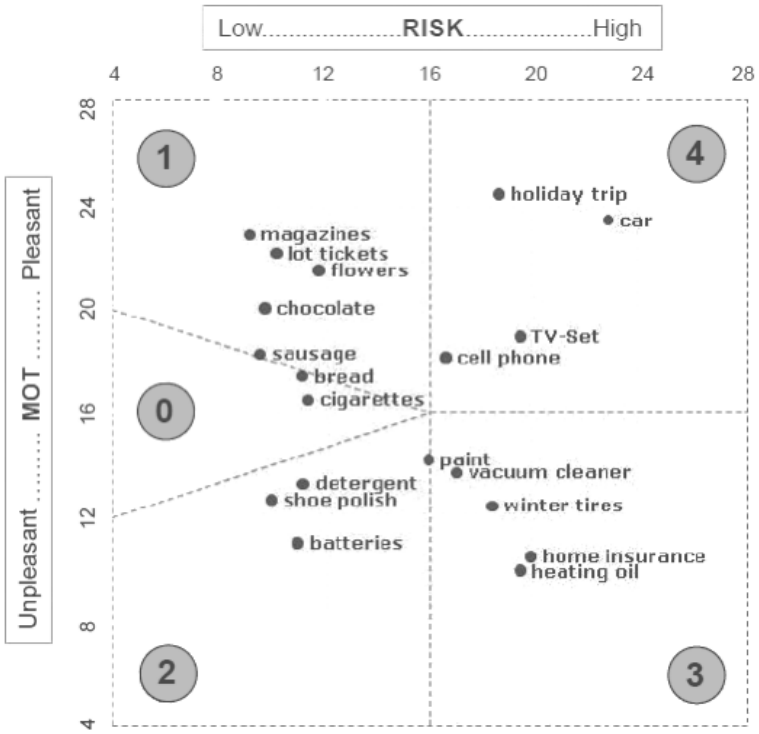
These empirical findings will be closely examined in the Findings section.

Through the Rossiter-Percy Grid, Rossiter et al., (1991) built the strong basis for further discussion and understanding of a relation between consumer motivation and involvement (defined through perceived risk). Moreover, authors introduce typical product categories which represent the intersection of each of four-dimensions.

The adapted and more recent version introduced by the Kraigher-Krainer (2012) is called the ECID Grid. The author describes ECID Grid as "a two-dimensional involvement scale based on a comprehensive model which captures the two antecedent factors of purchase-related involvement, namely whether the motivation is intrinsic or extrinsic and whether the risk is perceived as low or high" Kraigher-Krainer (2012, p. 14).

Kraigher-Krainer (2012) continues that same as Rossiter-Percy Grid, ECID Grid is the model which can be used in practice. However, the author also points out that Rossiter and Percy refused to measure involvement quantitatively and therefore, made their grid possible to apply in practice only with a help of trained people. As the author clarifies "ECID is an abbreviation for the proposed customer decision process of emotion, cognition, involvement, and decision" Kraigher-Krainer (2012, p. 15).

***Grid 2**: The ECID Grid*



***Source:** Kraigher-Krainer, (2012, p.16)*

Kraigher-Krainer explains that each dimension (MOT and RISK) is measured by 4 items, each on the rating scale from 1 to 7. "The ECID scale is the first method which measure impulsive purchases such (lottery tickets, magazines, chocolate bar), extensive purchases (cars, holiday trips), habitual purchases (bread, mineral water)" (Kraigher-Krainer, 2012, p.16). The Kraigher-Krainer's ECID Grid method offers same as the methods before, a better understanding of motivation and risk.

Analyzing of the motivation reveals "work-or-fun" orientation of customers. Kraigher-Krainer (2012) explains, "if people are highly motivated, they are generous with their resources such as time, money and cognitive effort. They are ready to travel a long way and spend a lot of time in your location. They like assortment, they are open for variety and they will even visit your location without a precise shopping list. The opposite counts for extrinsically motivated customers: here less is more!" (p. 18).

The factor of Risk reveals a strong need for information. According to Kraigher-Krainer (2012), a better understanding of the level of information required by consumers might lead to saving monetary resources and avoiding of over-information. Finally, the author mentions that combined view of MOT, RISK and involvement provides further insights in term of decision heuristic and can be used as a reliable tool for market segmentation and shopper typologies analysis (p. 18).

Involvement Risk and Motivation are crucial factors in the whole consumer Decision-making process. The Grids and methods introduced in the information searching part give our thesis a better understanding of how are these elements connected.

***Table 1**: Selected Managerial Consequences of Purchase Involvement*

Product category (see Fig. 1)	Impulsive goods (Territory 1)	Habitual goods (Territory 0)	Convenience goods (Territ. 2)	Unsought goods (Territory 3)	Specialty goods (Territory 4)
Central challenge	**Experience leadership**	**Routine leadership**	**Process leadership**	**Customer intimacy**	**Product leadership**
Products and services	variety seeking, core product is entertainment and surprise	the usual ("my") product, easy to identify, automated purchase	any product will do, instrumental or "avoidance" products	tailored to personal needs, solves complex problems, total solutions	perfect products, technology push, customer expertise
Distribution	high distribution, everywhere, POS and pleasant atmosphere, nice people surprise the customer	reliable, well known solutions, no stock outs, no unnecessary complication in assortment	all-around purchase opportunities, everything that reduces acquisition costs	company comes to the customer, sales team orientation, surrogates, high sales density	selective to exclusive distribution, specialized stores with deep assortment and competent clerks
Type of loyalty	theme and location loyalty	loyalty to one´s habits	store and item loyalty (inertia)	sales rep loyalty, switching cost sensitivity	brand loyalty

***Source:** Kraigher-Krainer, (2012, p.17)*

As can be seen on the Table 1., Kraigher-Krainer (2012) formulated extra managerial consequences of purchase involvement associated with the territories. These managerial consequences will not be discussed at the moment but will be connected to further examination while discussing ECID Grid topic in the Findings section.

ECID Grid will be used in the research of this thesis while positioning different product categories on the ECID Grid matrix. Therefore, as stated at the beginning of this chapter, it is the crucial element for a better understanding of the problematic and deeper theoretical knowledge which will be important for examination of the Digital Advice role in the consumer behaviour.

There are other factors which can influence the motivation of the consumer towards the internal, but especially external search. Hoyer et al., (2013) listed ones such as perceived costs and benefits, consideration set and relative brand uncertainty (p. 199).

2.2.4 The Role of Digital Advice in Alternatives Evaluation and Post-purchase Stage

According to Solomon et al., (2006) the effort in the Decision-making process occurs especially while deciding between the available alternatives. The authors pointed out that modern consumer society has more choices than ever, "in some cases, there might be literally hundreds of different brands or different variations of the same brand, each clamoring for our attention" (Solomon et al., 2006, 272)

Solomon et al., (2016) continue that consumer narrow down the options depending on decision-making process used. The consumer involved in the process might carefully evaluate several options, on contrary, a consumer whose involvement in the process is rather lower as it is in the habitual decision, may consider less or none alternatives. Alternatives which consumer considers are formed into his or her evoked set. The consumer is then

compromising between products from this set and therefore, create so-called retrieval set. For these reasons, it is crucial for marketers to get their brands in the evoked set (p. 273).

Solomon et al., (2006) describe the importance of the product categorization as follows, "since the category in which a product is placed determines the other products it will be compared with, categorization is a crucial determinant of how a product is evaluated" (p. 274). The authors add that product categorization has its strategic implications in the way how products are grouped (p. 276).

Once the product set of alternatives from the relevant product category is chosen, Solomon et al., (2006) continue that consumer proceeds to the evaluation of criteria and final decision-making process. "Evaluative criteria are the dimensions used to judge the merits of competing options" (Solomon, 2006, p. 277). Authors also point out, the importance of criteria on which products differ from each other because these criteria carry more weight than the ones where product are similar. The attributes which are used for a differentiation among choices are called determinant attributes (p. 277).

Solomon et al., (2006) explain that consumer considers sets of these attributes by using various rules, once again depending on the complexity and the importance of the decision. The authors further distinguish between decisions which are compensatory versus those that are non-compensatory (p. 290).

Non-compensatory decisions are the shortcuts in making choices. The consumer simply eliminates all the options that don't meet some basic standards. Once a consumer is less familiar with a category or simply not willing to process the complex information he or she tends to use some of the simple, non-compensatory rules or so-called heuristic – shortcomings which will be described later (Solomon et al., 2006, p. 290-291).

Solomon et al., (2006) continue that the Compensatory decision rules are in general used by consumers who are engaged in the process and purchase and therefore are willing to extend their effort. They try to compare positive and negative process strategies. There are two types of compensatory rules, the simple additive rule which says that alternative with the largest number of positive attributes is selected. This tends to occur when consumer motivation or ability is limited. The drawback of this rule might be that not all the attributes have the same importance to the customer. The more complex version is when the consumer takes into account relative importance of attributes which is called the weighted additive rule (p. 290-291). Since the Digital Advice is built upon attributes recommendation, this is a crucial fact which should be addressed during the research.

Once consumer finishes information search successfully he or she moves towards the decision-making stage. The decision making can be described as "making a selection among options of courses of actions" (Hoyer et al., 2013, p. 214). Additionally, Hoyer et al., (2013) distinguish between high-involved and low-involved purchase (p. 214). Decision processes are, however, similar to the customer involvement in the Search stage and therefore, will not be further discussed.

What is most important at this point is to once again mention the Digital Advice role which can have a significant impact on final decision made by the consumer. The Digital Advice technology which in general understanding represents Digital Advice topic always offers an explanation why a certain product is recommended, so it is obvious for a consumer to match his or her needs alternatively wants with the product's attributes. Additionally, Digital Advice offers a possibility to compare multiple options which provide the consumer with a better overview of all alternatives listed. This can make the whole process easier since a lower level of cognitive effort is required and consumer might feel more confident about his or her purchase decision.

As it is obvious from the theoretical background stated above, Digital Advice plays its role in multiple stages of the decision-making process, whether it is the search stage, comparison of alternatives or final decision. Moreover, as will be described in the next section, Digital Advice's influence might go far beyond the regular usage of the technology.

As was pointed out earlier consumer decision-making process does not end with the purchase decision itself, but continues in the post-purchase behaviour. This is one of the key reason why the Thesis does work with the term consumer. Once the decision is made consumers can naturally make either satisfaction, dissatisfaction or neutral judgment about their choice. Hoyer et al., (2013) define satisfaction as, "the feeling that results when consumers make a positive evaluation or feel happy with their decision" (p. 273 – 274).

Following the previous statement dissatisfaction can be then understood as an opposite. Hoyer et al., (2013) add that "in judging satisfaction, the consumer makes a conscious comparison between what thought would happen and the actual performance (Johnson, Anderson and Fornell, 1995)" (p. 274).

Hoyer et al., (2013) mention the research of Richins and Bloch (2001) who pointed out that consumer satisfaction varies among different level of consumer involvement, time and consumer characteristic. These authors said that consumers highly involved in the decision-making process tend to express higher satisfaction immediately after the purchase. This feeling, however, declines over the certain time period. Lower-involvement can be then characterized as an exact opposite (p. 274).

It might seem that once being online retailer or brand should simply present all the information they have. Such an action would, however, according to Saegert's (1978) whose findings were mentioned by Mosteller, Donthu and Eroglu (2014) significantly increase the amount of attention capacity and cause the unfavourable attitudes to occur. This finding is applicable also in the online environment where the high amount of information may increase visual attention effort, decrease perceived fluency which at the end, results in a higher cognitive effort that makes whole user's experience less enjoyable (p. 2).

Mosteller et al., (2014) support through their research the previous findings and confirm that a higher level of perceived cognitive effort associated with the purchase can have a negative influence on the purchase satisfaction. Put this in different words, the consumers who perceived the shopping on a website as a difficult one, were less satisfied with the choice they have made at the end (p. 2). "If consumers perceive presentation of online information as pleasing and easy to absorb, they may also regard their thoughts and feelings associated with the online task as more enjoyable and less effortful, thus leading to more positive evaluations of the shopping outcome" (Mosteller et al., 2014, p. 2). This research, however, does not fully reflect the reality since participants did not use their personal finances and therefore, the real outcome could have been slightly different. Still, these findings are crucial to the further formulation of the Digital Advice role in the Consumer Behaviour.

Schwarz (2004) author of Paradox of choice theory, partly confirms previous findings and offers an explanation why the endless number of choices and alternatives might let consumer feel worse also after she or he has finally done the final decision.

Schwarz (2004) says that common feeling which is present after the decision has been made is regret. Regret which consumers usually feel after the decision is called post-decision regret. The post-decision regret also called 'buyer's remorse' what means that after purchasing decision, consumer starts to have second thoughts about a different decision he or she could have made, or imaging other alternatives which he or she has not yet explored. Feeling of regret can simply distract consumer from being satisfied with his or her decision. Another type of regret called anticipated regret is even worse because besides regret, it causes a paralysis. It starts in the form of thoughts, before the final decision is made and makes the decision significantly harder to make. Both these types raise emotional stakes of decision (p. 147 – 148). Schwarz (2004) summarizes the theory as follows, "anticipated regret will make decisions harder to make, and post-decision regret will make them harder to enjoy" (p. 148).

According to Schwarz (2004), the explanation can be found in the human evolvement. The author mentions that "people were not really faced with an array of choices and opportunity costs" (p. 142). On contrary, decisions used to be in a form of avoidance, rejection or acceptance and could have been solved with a by common sense. Schwarz (2004) at the end ads thought essential for this thesis and research "after millions of years of survival based on simple distinctions, it may simply be that we are biologically unprepared for the number of choices we face in the modern world" (p. 143).

2.3 CURRENT AND FUTURE ROLE OF DIGITAL ADVICE IN THE LIGHT OF CONSUMER NARRATIVE

This part of the thesis, coming to the main core of the term 'consumers', particularly rationality and irrationality of human beings and to it connected current and future role of the Digital Advice. With every new and still unexplored concept a further step, almost a philosophical exploration has to be made.

The word economy comes from the Greek word '*oikonomos'*, which as Mankiw (2011) explains is "one who manage the household" (p. 3). As Mankiw points out, an ordinary household faces many decisions every day. It must decide and assign daily tasks between members of the household: Who should work? Who cooks dinner? Who gets the extra portion at the dinner table? It can be said that households are in the constant decision-making process of how to allocate their scare resources such as money or time in order to satisfy their unlimited wants. Economics then trying to reflect the act of resources allocation in the whole society (p. 3). Since the purpose of this work is not to describe the broader economic theories, the best way to go is right back to the very beginning Alfa & Omega of the whole Economy and every household – a man. One of the greatest economics of our history and so called father of the Neoclassic Economics Marshall (1920) mentioned that "Economics is most importantly the study of man" (pp. 6).

During development of Economics as a science, there were several assumptions about the human nature. Smith, the father of the Modern economics presented his view on the rational man nature in his books The Wealth of Nations and The Theory of Modal Sentiment. According to Hudik (2015), the correct translation of rationality described by classical economists would be a wealth-seeking animal (p.2). Mankiw (2011) adds that economic man as a rational human being, systematically and purposely do everything he or she can do to achieve their goals, given the available options (p. 6).

Smith's view on man nature is according to Coase (1973) usually described by the self-interest as the main motive in human beings' behaviour. The author continues that besides self-interested Smith's described several other motives which influence human behaviour. As far as the father of the Classical economics indicates, man is a complex human being whose thoughts and motives can be not that easy to follow (p. 3). Although Smith's legacy did not end up in complexity, but rather in a superficial explanation of human behaviour, it created important incentive to start asking a question 'Why do people do what they do?'

As mentioned before, modern economics and clear majority of economics publication recognize Smith as the father of the economy. As Frank (2012) the New York Times economist and author of *The Darwin Economy* mentions there are no doubts about geniality of Smith' progressive thinking proved in his theories. The very same author, however, criticizes Smith and other economists for the lack of expertise in human behaviour. The author argues that mainstream economists describe something which involves millions of years in a superficial way. Frank tends to think about the evolved brain as the hardware and about the human motivation system as the corresponding and complex software (p.12).

In recent years, there have been constantly more voices which says that the Classic economy and its understanding of the man behaviour must adapt. “Economic models have failed and it was normal to fail because they are based on false premises (Voinea, 2009, p. 19)” (Marinescu, 2012, p. 145). Economics understanding of man had the significant impact on the consumer behaviour understanding.

Angner (2006) mentions that behavioural decision research which as the first gripped attention of economics was work of Tversky and Kahneman. As psychologists, they well-understood human decision-making process and judgment (p. 30). Apparently, interconnections between scientific fields do not work in one direction, but rather influence each other. According to Angner (2006), their success was mostly connected to the fact that “they were able and willing to address economist in standard economic language and venue (Rabin, 1996, p. 111)” (p. 30).

Tversky and Kahneman’s ‘*Jungment under Uncertainty: Heuristic and biases*’ which first version was introduced in 1974 and as the Angner (2006) describes “shows that people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations (Tversky & Kahneman, 1974)” (p. 31). Angner (2006) continues that these two authors were mostly interested in the mechanism which was engine for human decision making and judgment (p. 31).

One of the important names which must be undoubtedly mentioned here is Thaler a professor of economics and behavioural science at the University of Chicago. Angner (2006) mentions that Thaler was like Tversky and Kahneman primary interested in anomalies such as underweighting of opportunity costs, self-control problems and the influence of considerations of regret, the failure to ignore sunk cost, and others. Thaler used cognitive psychology to find out why are peoples’ choices different from the ones expected by the rational choice theory (p. 31 - 32).

The list can continue with names such as Ariely, Schwarz and others who as well closely examined and explain some of the biases in the human decision-making process but some of these findings were already discussed and therefore, can be ignored at this stage. The most important in this point is understanding of the interconnection between Marketing, Psychology, and Economics which can be found in the field of Consumer behaviour.

The consumer behaviour and indeed the all topics of human behaviour must be closely defined and understood as a complex problematic. Only by knowing its perplexing evolvement process through vivid discussion from multidimensional fields, one can truly understand the interconnections and interventions by other tools. As several times mentioned before, consumer can consider and work only with a small part of all information about a specific offering. Another author who explored this problematic is Jansson-Boyd (2010) in the book Consumer Psychology. Jansson-Boyd (2010) mentions that although offering usually comes with not a full list of information, consumers simply do not have time to process all the already reduced information (p. 132). Lurie (2004) ads that there is an evidence from multiple researches which says that increasing numbers of alternatives or attributes in a choice set lead to a decline in the quality of consumer’s choices (p. 473).

“Heuristics are ‘rules of thumb’ that individuals subconsciously apply to reduce the effort involved in decision-making (Shah & Oppenheimer, 2008)” (Jansson-Boyd, 2010, p. 132). Jansson-Boyd continues that humans limited mental capacity simply does not allow us to make complex reasoning, therefore, heuristics enable consumers to handle these tasks through the simple methods of reasoning (p. 132). The heuristics seem to be helpful but this statement would be wrong as Jansson-Boyd (2010) explains, “the trouble with heuristic is that they do not always help the consumer to make the right decisions but instead they frequently lead to error and bias” (p. 132).

As Jansson-Boyd (2010) comments, the problematic of consumer rationality versus irrationality is not as simple as it seems. On contrary, findings in the different areas indicate that question whether consumers are or are not rational is very complex (p. 138). “For example, becoming more familiar with products may aid their decision-making process in that they will rely less on heuristics (Hutchinson & Eisenstein, 2008)” (Jansson-Boyd, 2010, p. 138).

2.3.1 Consumer Evolvement & the Future of Digital Advice

In the previous chapters, the consumer behaviour and decision-making process from the historical point of view were examined, as the best way how to enrich the research and create prediction about the evolvement of the Digital Advice in the future. Whether consumers behave rationally or irrationally does seem to be almost a philosophical question which has the power to divide the greatest economists of our times. The goal of the thesis is not hidden in exploring irrationality or rationality of consumers but the purpose of Digital Advice was, is and will be deeply rooted in this question. This is partly described in the following text.

Definition of current and future role of Digital Advice is crucial to our research and holistic understanding of the topic. Hsee (1993) and Hsee, Zhang, Yu and Xi (2003) offer unique researches which pointed out the difference between 'what does the consumer want' and 'who the consumer is'.

Studies closely examine term Lay economics which according to Hsee et al., (2003), “urges decision-makers to focus on economic calculus and choose the option that entails the greatest (perceived) economic gains” (p. 259). Hsee et al., continue that some attributes are less and some are more central to the economic calculus. If a decision needs to be taken, lay economics believe that people will assign more weight to the attribute which is more central to the economic calculus. This effect was closely examined by Hsee (1993) and further discussed by Hsee et al., (2003) in the following Cockroach experiment. Participants were asked to imagine that they won a chocolate in the lottery and could choose their win, either a smaller less expensive chocolate (0.50$) in the shape of a heart or a bigger chocolate (2$) in the shaped of a cockroach. Once asked to predict which chocolate would be more enjoyable for eating, respondents vastly choose the heart-shaped one, however, when asked which one they would like to choose, the majority decided to take one in the cockroach shape (p. 259).

Crucial for this thesis is the fact that respondents despite their obvious disgust towards the cockroach chocolate decided to take it, since as the Hsee et al., (2003) mentioned, it seemed to be a choice which was based on a more central attribute (amount of chocolate/price) to the economic calculus (p. 261). Jansson-Boyd (2010) who as well discussed this research comments that reason behind respondents choosing the cockroach shaped chocolate might be a fear of being seen as irrational decision makers (p. 138).

Hsee et al., (2003), define this idea closer through the theory of Lay scientism which leads decision-makers to base their choice on the 'hard attributes' rather than 'soft attributes'. Definition of these attributes is as follow "when two options differ on a certain attribute, if it is (or perceived to be) objective and unequivocal as to which options is better, then this attribute is a hard attribute. If is (or perceived to be) subjective and malleable as to which option is better than it is a soft attribute" (Hsee et al., 2003, p. 261).

Hsee et al., (2003) additionally introduce the Stereo study which supports this theory. Respondents of this study were deciding which stereo to choose once the power was objective (hard) attribute and rich sound a subjective one for group A and vice versa for group B. The results shown that respondents always choose the option where objective (hard) attribute domain. Lay scientism reflects the tendency of decision-makers to trust more hard facts. They explain this tendency by the fact that decision-based on hard attribute seems to be more objective and scientific and therefore, for people more justifiable. Second, it is safer to base the decision on hard attribute due to greater certainty in the relative desirability of the choice option (p. 261 - 262).

Jansson-Boyd (2010) who also closely discussed this study mentions, "this demonstrating that people are prepared to base their choices on what they consider to be a 'rational' choice' as opposed to subjective evaluation" (p. 139). Hsee et al., (2003, p. 269) points out that "making rationalistic decision may itself engender a pleasure; that is, a cold decision may itself create a hot feeling". As an example, Hsee mentions a consumer who chooses an option with a greatest economic gain, and he or she simply feel happy about it.

The findings discussed above once again showed how complex the consumer decision-making process can be and that one cannot simply say that people behave in a certain way. Despite the lack of time resources or cognitive capabilities, it seems natural that consumers do want to do rational choices. Digital Advice is a tool to reach these rational choices and therefore, its theoretical importance in consumer behaviour is proven to be essential.

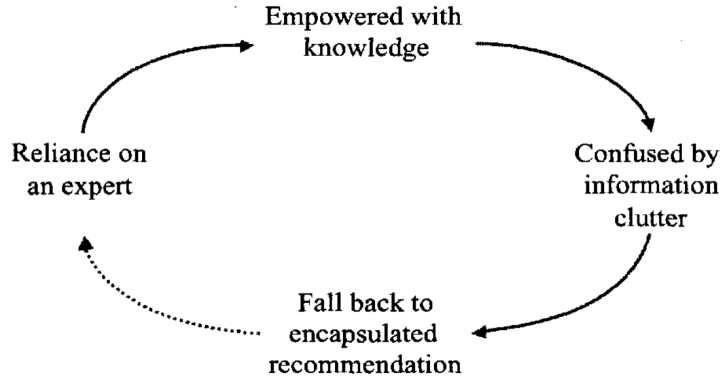
According to Henry (2005), there is no doubt that technology is simply destined to affect the core of consumer behaviour. Consumers simply have more options to use the endless possibilities of the internet and search for information or easily evaluate products alternatives online in the real time. The main promise of the internet is rich information offer for consumers who can access this information and make a thought-through decision (p. 345).

Henry's (2005) key proposition is that rules which have been successfully used in traditional marketing will also be effective in the online space (p. 346). "Despite the impact of innovation on media alternatives, we must realize that we are faced with human characteristics that remain constant over time" (Henry, 2005, p. 346). The author's theory is

based on the fact that consumers experience information overload. As the author comments, we have already passed the point where we could be able to use all or at least most of the information available. Once the decision becomes more complex we usually use less of the information available (p. 347). This somehow copies a paradox a choice, only, in this case, topic focuses on the information overload.

"Increased time pressure, expanded access to information, greater range of choice, together with cognitive limitations force consumers to be highly selective in their information usage." (Henry, 2005, p. 355). The author points out that consumers in the "old" offline world employed short-cut on perceived expert, such as salesperson, doctor, or salesperson. Henry argues that technology actually takes us on a cycle and once the confusion from information raises he predicts "that consumers will tend to fall back on Internet application that really constitutes expert recommendation – trusted branded sites, independent intermediary sites, or the recommendation agents" (p. 347).

***Scheme 6**: Constraining Factors in Consumer Decision Making*



***Source:** Henry, (2005, p. 349)*

Another point of view is presented by Mishra and Olshavsky (2005), "the use of this new technology is making the concept of a 'consumer', as seen today in the marketing literature, obsolete. It is becoming increasingly important to conceptualize a consumer as a man-machine alliance, comprised of the consumer, the personal computer, the World Wide Web, and the supporting infrastructure" (p. 368). The authors call this alliance 'consumer-computer system' and define it as "alliance between man and machine in which the two interact to make decisions" (Mishra & Olshavsky 2005, p. 368).

Mishra & Olshavsky (2005) continue with the theory of bounded rationality. This theory was based on the inability of decisions makers to collect and store a large amount of information and the low level of knowledge which they operate with. Due to use of the technological solution, the opinions about the consumer capabilities are being revaluated. The synergy between consumer and machines led authors to the theory of 'unbounded consumer rationality' (p. 370).

Theory of bounded rationality is crucial while speaking about the consumer interaction with Digital Advice technology. Since the Digital Advice helps consumer with processes which would otherwise require extensive cognitive effort, it fulfils the definition of heuristic which however, deliver the correct and for consumer favourable results. Moreover, in the digital space the solution might be the one which substitutes the role of an information mediator and help to close online decision-making circle.

As Henry (2005) pointed out human characteristics remain constant over time, but in the field which changes as fast as digital marketing, the focus should stay with the question who consumer really is.

3 METHODOLOGY & HYPOTHESES FORMULATION

In the Literature review, we described consumer decision-making process, as well as specifics of the consumers in the Digital world. We aim our focus on the ECID Grid which supports our main quantitative research. The valuable knowledge gathered during the previous sections will be further discussed in the light of the research.

The key problem which is this thesis trying to solve is the description of the Digital Advice technology role in consumer behavior with a focus on online behavior of consumers. Topic has not been examined by any other research on a sufficient level mainly because its extensive data requirements. Since the Digital marketing can be still considered to be a relatively new field, there are various components of consumer behavior that are already well-known in the offline world but stay hidden in the space of zeros and ones. While using the knowledge from the offline consumer behavior, we must keep in mind the complexity of the digital environment. Moreover, we should not forget that these worlds are not separate, but on contrary, are strongly interconnected between each other.

Recently there is growing number of start-ups and disruptive technologies which have a significant impact on consumer behavior and decision-making process. The number of these technologies is growing by almost every day and same as customers feeling overwhelmed by information and number of products, academic researchers and managers may feel overwhelmed by the evaluation of these technologies. Therefore, we will dedicate paragraph below for the description of one of those technologies, Digital Advice technology.

3.1 DIGITAL ADVICE TECHNOLOGY DESCRIPTION

We believe that for the topic understanding, it is important to describe how does a typical Digital Advice technology works and how can company build such a technology. Digital Advice technology we were working with works as a Software as a Service solution and offers the platform where clients – companies can simply build and integrate their own Digital Advice tool. The process how to build the advisor goes as follows:

Define the data - in the first step, clients connect a single data feed that contains structured information about company offerings to the data feed. Data should contain detailed information called products' attributes about the products or services which serve as a base for the rule-based system.

Defines the Rule-Based System - as mentioned, data are matched with consumers answers through the pre-defined rules within the technology. Rules can be simple or complex depending on the complexity of the product category and client's requirements. Once rules are in place, they serve as the backbone of the system. In the light of our problematic, these rules represent consumer cognitive processes.

Define the question flow - once the previous two steps are done, the next step consists of setting-up the question flow which simply means order of different path and questions. Clients through the Digital Advisors reproduce and expect a regular conversation which is similar to the one, consumer would have with a shopping associate in a local store. Digital Advisor actively interacts with consumer and offers specific question due to previous answers. Therefore, the consumer who wants to order a student tariff will not be asked questions about his or her family budget, as this could be perceived as a non-relevant question. The question flow is a crucial part of the advisor and as a qualified shopping associate defines whether a consumer will or will not be engaged by the process and consequently, whether he or she will find the whole process professional enough to trust the technology. The essence of the Digital Advice technology are needs and/or wants oriented questions which do not require extensive cognitive effort from consumer's side and can be replied by any person with limited or no knowledge about the problematic.

Define Answers - by defining answers, we primary mean, setting up a specific type of answers. Consumer choice can be limited to only one choice, then we are speaking about radius button selection. The consumer can also pick up from multiple choices then we are speaking about the multiple selections. The answer can also be in the form of numerical choice presented as a numerical slide bar. As a navigation and help for a consumer, every answer can be supported by information button which shows contextually relevant information.

Define Design - the very last step in the process is to define a design which should be similar to the website and co-create the whole user experience. Companies mostly use design which is coherent with their website design and therefore, keeps the fluency of the consumer journey. By design we understand text, fonts, colors, pictures or other graphical effect use within the advisor.

Define integration - once an advisor is built on the backend platform of the Digital Advice technology provider, it can be integrated to every channel and touchpoint. The way advisor is integrated can have a significant impact on its performance. For example, an advisor which is not visible enough can be simply overlooked and therefore, indicates a lower number of started sessions. Another example can be advisor which lack the mobile integration.

Each of the steps mentioned before has a significant impact on the fact whether advisor will be a success or not. Digital Advice is usually used in a form of clickable options as it is displayed in the Image 1 below. Technology can also be formed into the Chabot or Voice Assistant. However, all the data used in our research came from the classic and most used

form of the clickable questions and answers with supportive pictures and therefore, further focus will be aimed on this type of Digital Advice – Solution.

***Image 1**: Digital Advice Interface*

***Source**: Adopted from the Digital Advice Provider Slide Deck (2017)*

As the Image 1 displays, Digital Advice technology can work in every category. Naturally, its results might differ across different categories, what is at the one of the research problems of our research. Since we have already discussed first four points displayed on the Image 1, we should further examine the results generation problematic which is crucial to the technology understanding.

Results generation is crucial within consumer decision making process. Results are generated through the complex rules engine described above which match consumer's answers with relevant product attributes stored in the data and as an outcome offers a suitable product.

In a regular set-up, results are offered automatically during the process and updated with every answer. It is believed that this has a major impact on consumer decision-making process because consumer can see that by every simple answer he or she actually chooses a certain product attribute. During this process, consumers are being educated about the product category and can easier connect product attributes with their real-life functionalities. For example, by choosing an answer 'I want an ecological washing machine' the washing machine with A+++ product attribute would be selected.

The consumer can also, move back and forward and change his or her answers easily. This can happen if a consumer wants to explore the advisor or better relate answers to product attributes. If the product which has been so far rated as the best one due to most of the criteria does not have a specific attribute, the consumer can see negative mark next to this missing attribute and decide whether it is crucial to their choice or not.

The product which matches with most of the consumer's criteria is recommended. Such a product is called 'the best fit' and represent the best option for the consumer. There can be several 'best fit' options presented at the same time. These options are usually ranked by the price. If there is a product which does not meet all the consumer's criteria, but still covers most of them, the product is offered as an alternative option. Following the same logic, multiple alternatives can be displayed. They have ranked accordingly to how many attributes are matching the consumer's criteria.

Once the final page with the best fits and alternatives is displayed, consumer can compare products between each other. Consumer can access comparison option also during the search process. The comparison option offers a possibility to compare products in the transparent form and help the consumer choose whether he or she is willing to pay more or less for a certain attribute. This option is often being offered directly in the standard e-shops filters, so consumer can use these options also without starting the Digital Advice technology.

The question remains, whether consumer who has a limited knowledge about the product category can compare directly technical attributes which do not say much without explanatory context. While after finishing the advisor, consumer can already use knowledge gathered before and make a more confident decision, while comparing relevant options.

Importance of knowing hard attributes was mentioned by Hsee et al., (2003) in the Stereo research and discussed in theoretical part of our thesis. By automatically and visibly matching consumer's needs with product attributes, consumer is served by a rational choice which is based on his or her needs and wants. Moreover, consumer has a transparent overview of all the relevant alternatives and therefore, can compare and choose the best fit without extensive cognitive effort.

3.2 DATA ACQUISITION PROCESS

There are no similar data available which makes our research completely first of its kind within this field.

In this research, data were offered by the leading Digital Advice provider which poses with the world-wide unique data resources. Company wishes to stay anonymized and therefore, will be call it under the generic term Digital Advice provider. All data were gathered through the Google Analytics tool integrated within the technology which in general, measures all interactions between the users and Digital Advice solution.

In our research, we are operating with a total of 52 057 real-life interactions made by 46 870 consumers in the Digital Advice technology on unspecified platforms. It is crucial to mention that our research records consumers natural behavior in the digital environment. Consumers are operating with their own scare resources such as time or monetary resources and therefore, our research confirms its reliability and validity for the academic and business sphere.

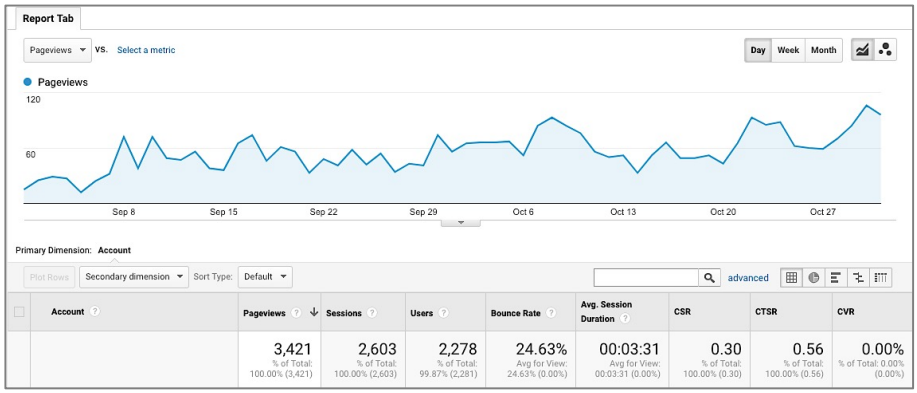
Due to the data security question, we cannot further specify location of the environments where were data taken. Moreover, due to the highest security standards, all the data has been adjusted by a secret coefficient. The data still has the same valuable connection and relevancy for purposes of our thesis. Data security topic will be further discussed in the research limitation section.

We already mentioned several times that key data of our research were gathered through the Google Analytics tool - https://www.google.com/analytics/. Google Analytics is a tool used by marketing agencies, corporations and other entities engaged in the field of Digital Marketing. It offers reliable and precise analytic measurement which are further used for the various analytical purposes.

Google Analytics Glossary - before we move to the section of Findings, we should explain the terms which will be further used for the description of thesis' findings. Since the Digital Advice technology has its integration with the Google Analytics tool, we will use glossary provided directly by the Google for further explanation of the other relevant terms.

Google Analytics Glossary (2017) https://support.google.com/analytics

***Image 2**: Google Analytics' Interface | Example*



***Source**: Adopted from Digital Advice Provider -Google Analytics Account (2017)*

Tracking code – "The Google analytics tracking code is a snippet of JavaScript that collects and sends data to Google analytics from a website. The tracking code may be added directly to the HTML of each page on a site, or indirectly, by using a tag management system such as Google Tag Manager." (Google Analytics Glossary, 2017)

Session – "The period of time a user is active on a site or an app. By default, if a user is inactive for 30 minutes or more, any future activity is attributed to a new session. Users that leave a site and return within 30 minutes are counted as part of the original session." (Google Analytics Glossary, 2017)

Pageview – "An instance of a page is loaded (or reloaded) in a browser. The pageview is a metric defined as the total number of pages viewed" (Google Analytics Glossary, 2017).

Unique Pageview – "The unique pageview, as seen in the Content Overview report, aggregates pageviews that are generated by the same user during the same session. A unique page view represents the number of sessions during which that page was viewed one or more times." (Google Analytics Glossary, 2017)

Conversion Rate – "A completed activity, online or offline, that is important to the success of the business. Examples include a completed sign-up for your email newsletter (a goal conversion) and a purchase (a transaction, sometimes called the E-commerce conversion). The conversion can be a macro conversion or a micro conversion. The macro conversion is typically a completed purchase transaction. In contrast, a micro conversion is a completed activity, such as an email signup, that indicates that the user is moving towards a macro conversion." (Google Analytics Glossary, 2017)

Conversion rate, is by far the most important indicator which shows how users engage and trust the solution. In the Digital Advice technology, conversion is measured by click on the product detail page which is simply called click-out.

Event – "Event is a type of hit used to track user interactions with content. Examples of user interactions commonly tracked with Events include downloads, mobile ad clicks, gadgets, Flash elements, AJAX embedded elements, and video plays." (Google Analytics Glossary, 2017)

Bounce rate – "is single-page sessions divided by all sessions, or the percentage of all sessions on the site in which users viewed only a single page and triggered only a single request to the Analytics server." (Google Analytics Glossary, 2017)

Goal – "A configuration setting that allows tracking of valuable actions, or conversions, that happens on the website or mobile app. Goals aim is to allow measuring how well the site or app fulfills target objectives. Individual Goals can be set-up to track discrete actions, like transactions with a minimum purchase amount or the amount of time spent on a screen. Each time a user completes a goal, a conversion is logged in your Analytics account." (Google Analytics Glossary, 2017)

In order to fulfil the main goal of this thesis and describe the role of Digital Advice in online consumer behaviour within the changing environment of various product categories and to their online purchase connected perceived factors of Risk and Motivation of the online purchase, the extensive data set from the provider needed to be supported by the additional dimension which required our own research. Therefore, second minor part of the examination consists of our own survey. The survey is based on the standardized type of the questionnaire offered within the ECID Grid theory by Kraigher-Krainer (2012). The theory around the ECID Grid was closely described in the Literature review.

In both parts of our research, we are working with 8 different product categories. The product categories used are Light Bulb, Blinds, Bicycle, TV, Notebook, Mattress and Washing Machine product category. The main purpose of this additional dimension is to localize product categories on the ECID Grid and found out the location of perceived factors of Risk and Motivation connected to the online purchase.

The full questionnaire is displayed within the Appendix 1. It is important to mention that questionnaire is only minor part of our research and its primary purpose is to serve, as an additional dimension to our main research and as such has its limitation. This topic is closely discussed in the research limitation section within the Discussion part of our thesis.

ECID Grid - Questionnaire is divided into two parts dedicated to dimensions of Risk and Motivation, each presented by 4 questions. Questions in each section, focus on a particular dimension of Risk and Motivation. Questions are in the rating scale format of simple Semantic Differential.

In the standardized questionnaire, respondents were offered scale from 1 to 7, each represented respondent's agreement with one of the two polarized statements. Since the research focuses on the digital environment respondents were acknowledged about this fact at the beginning of the questionnaire and reminded at the beginning of every question.

Examples of the reminder within the 1st question related to dimension risk:

*Use the following scales to describe your attitude to the **ONLINE purchase** of product/service.*
Claim {x} 1 (You can't really go wrong) vs. Claim {y} 7 (You can easily make a mistake)
***Source:** Author's Survey*

As the last step of the process, answers in both sections were counted together, providing us with the location of a particular product category on the ECID Grid.

We leveraged the ECID Grid - Questionnaire and added one extra question which was independent and was not counted to the overall Risk or Motivation score. By this question, we indented to measure subjective need of users to use Digital Advice tool in the process. While the purpose of this question is not connected to the ECID Grid - Questionnaire, its theoretical background was widely described through the multiple touchpoints within the Literature review part.

The 9th extra question related to dimension risk:

Use the following scales to describe your attitude to the ONLINE purchase of product/service.
Claim {x} 1 (I wouldn't need any personalized advice) vs. Claim {y} 7 (I would welcome personalized advice from an expert)
Source: *Author's Survey*

As can be seen from the question number 9th displayed above, its only purpose was to find out in which particular product categories consumers seek a personalized advice. We used term personalized advice which as we believe, can be in the digital environment and our terminology translated as the Digital Advice.

Questionnaire was created through the Google Form online tool - https://docs.google.com/forms

The ECID Grid - Questionnaire was distributed online. Contacts have no understanding or insight into the problematic. The questionnaire was answered by 65 users in total within the period of three days 16.10.2017 – 19.10.17. Respondents were acknowledged about the purpose of the questionnaire, its structure and anonymity by the text displayed within the Appendix 2. Concrete results and further analysis of the ECID Grid - Questionnaire will be offered in the section of Findings.

3.3 HYPOTHESES FORMULATION

Following our goal, we set-up five key hypotheses which as we believe should help to describe role and importance of the Digital Advice technology in the Digital environment. Hypotheses are based on theoretical premises stated in the Literature review and cover different changing variables such as factors of Risk and Motivation, consumer's specifics and perceived need for personalized advice. Premises will be accepted or rejected upon the final results from the data gathered from Digital Advice technology and data taken from the ECID Grid – Questionnaire.

"In *formulating hypotheses,* the researcher uses 'interesting' variables, and considers their relationships to each other, to find suggestions for working hypotheses that may or may not have been originally considered (Mohr, 1990, p.12)" (Smith & Albaum, 2010, p. 259).

Smith and Albaum (2010) mention that process usually starts with formulating hypotheses and is followed by making inferences and estimating parameters. Authors add that in practice this process tends to merge and change initial order (259).

The null hypothesis is testable in the sense that the hypothesized lack of relationship can be tested. If a relationship is found, the null hypothesis is rejected. The Null hypothesis state that there is no difference between groups (Smith & Albaum, 2010, p. 267).

The alternative hypothesis, states the specific nature of the hypothesized relationship, that there is a difference. The alternative hypothesis is the opposite of the null hypothesis. The alternative hypothesis cannot be falsified because a relationship hypothesized to exist may not have been verified, but may in truth exist in another sample (Smith & Albaum, 2010, p. 267).

H1: Usage of the Digital Advice solution increases with an increase in perceived Risk factor associated with the online purchase
H0: Usage of the Digital Advice solution does not increase with an increase in perceived level of Risk factor associated with the online purchase

The hypothesis is following level of the Risk factor and its connection to the Usage of the Digital Advice technology which is defined by the conversion rate.

As was illustrated earlier in the Literature review, consumer purchase behavior might be significantly influenced by the perceived level of Risk factor associated with the purchase of a product category. We mentioned several authors as Kotler et al. (2016), Solomon et al. (2006), Hoyer et al. (2013) who confirmed that risk factor might from theoretical understanding affect consumer behavior, especially during the Ask stage within the five A′s scheme and Search plus Alternative comparison stages within the Decision-making process. Additional research supporting this hypothesis was offered by Wu (2007) who said that online consumers display low pre-visit intentions for the websites with low-involvement products and high pre-visit intentions for the websites with high-involvement products. More precisely, we can say that higher level of Risk factor intensives the search process and the total number of touchpoints in the consumer journey. Since we earlier mentioned that from the theoretical understanding Digital Advice is a part of the Search and partly final decision purchase process, we assume that there is a strong connection between perceived Risk and usage of the Digital Advice solution measured through the conversion rate. We believe that same as the amount of Search done, usage of Digital Advice might be closely connected to the level of Risk.

Variables:
Perceived Risk Factor – measured by the Risk factor gathered from the ECID Grid - Questionnaire
Usage of Solution – measured through the conversion rate, gathered from the main data.

H2: Usage of the Digital Advice solution decreases with an increase in perceived Motivation associated with the online purchase
H0: Usage of the Digital Advice solution does not decrease with an increase in perceived Motivation associated with the online purchase.

The 2nd hypothesis of our thesis is comparing the second Motivation dimension of the ECID Grid with the level of the Digital Advice usage measured through the conversion rate. Another factor which might have an impact on consumer behavior is, therefore, perceived Motivation connected to the purchase. As confirmed by multiple authors in the Literature review, the Motivation or Pleasance is closely connected to purchase involvement and therefore, has a direct impact on the stages, followed by our research. Particularly, stages of Search, Alternatives comparison and Purchase stage within the consumer Decision-making process, and Ask stage within the five A's scheme. Once being motivated, the consumer is willing to engage in goal-relevant activity and is ready to process extra information and eager to make decision. Motivated consumers are simply ready to go an extra mile, in order to find more about the product or service they are planning to purchase or order. Kraigher-Krainer (2012) also added that for extrinsically motivated consumer, an opposite - less is more applies. For the reasons stated, we believe that with decreasing perception of purchase Motivation towards the online purchase, usage of Digital Solution measured through the conversion rate increases.

Variables:
Perceived Motivation/ Purchase Pleasance Factor - measured through the Motivation factor gathered from the ECID Grid - Questionnaire
Usage of Solution – measured through the conversion rate, gathered from the main data.

H3: Usage of the Digital Advice solution does depend on the factor of Gender
H0: Usage of the Digital Advice does not depend on the factor of Gender

The 3rd hypothesis, testing the impact of gender on the role of the Digital Advice. As this being discussed within the consumer's specifics section, we believe that the factor of Gender might influence consumer behaviour and has an impact on the Digital Advice role. As was mentioned before, there is a significant difference in men's and women's path-to-purchase. While for men path is more straightforward, for women path looks more like a spiral. This significant difference in path-to-purchase dimension might paradoxically also be a reason why there will be no difference between men's and woman's interaction with the Digital Advice solution. While looking for a more straightforward path, consumer can use the digital expertise to find the best product faster. At the same time, while trying multiple touchpoints consumer can easily find Digital Solution as an additional touchpoint on his or her journey.

Variables:
Gender – variable, gathered through the ECID Grid - Questionnaire and main data from the Google Analytics – Digital Advice Provider.
Usage of Solution - measured through the Conversion rate, gathered from the main data

H4: Usage of the Digital Advice solution does depend on the factor of Age
H0: Usage of the Digital Advice does not depend on the factor of Age

Another typical representative of demographic segmentation and dimension discussed in consumer's specifics section is the factor of Age. The 4th hypothesis is testing the impact which this factor might have on the role of Digital Advice. Due to our theoretical understanding of the problematic around generations, we believe that age can have an impact on usage of our solution. Since data gathered through the Google Analytics have their own standardized structure, we had to adapt the ECID - GRID Questionnaire and whole research accordingly. This, however, does not affect our hypothesis which simply follows any correlation between the changing variable of Age and its impact on Digital Advice usage. We will further enrich this hypothesis by analysis of interaction between discussed Generations and Digital Advice usage.

Variables:
Age – variable, gathered through the ECID Grid - Questionnaire and main data from the Google Analytics
Usage of Solution - measured through the conversion rate, gathered from the main data

H5: Usage of the Digital Advice solution is depended on the perceived need for personalized Advice.
H0: Usage of the Digital Advice solution is not depended on the perceived need for personalized Advice.

The last hypothesis within our research is connected to the perceived need for the personalized advice and its potential connection to actual usage of the Digital Advice solution in the real-life. Within our survey, we asked respondents an extra 9th question which was in an indirect way focused on the perceived need for the Digital Advice usage. Thanks to the input from the respondents we have a chance to find out, wheatear product categories which indicate a higher perceived need for personalized advice show also a higher performance/usage of the Digital Advice Solution in the real-life environment.

Variables:
Perceived need for Personalized Advice – variable, gathered through the ECID Grid - Questionnaire and main data from the Google Analytics.
Usage of Solution - measured through the conversion rate, gathered from the main data

3.4 STATISTICAL METHODS APPLICATION

In our research, we are trying to find out whether the usage of the Digital Advice technology which is in our understanding represented by the conversion rate is correlated with the other variables such as perceived level of Risk, Motivation or need for personalized advice. Moreover, in our research we closely examine whether there is relationship between usage of the advisor and other demographics′ variables such as factor of Gender or Age.

Due to the character of our hypothesis, we mainly using simple two-variable correlation by which we according to Smith and Albaum (2010) refer to the strength and direction of the relationship between two variables X and Y (p. 306). In order to decide whether two variables are linearly correlated, we must according to Weiss (2012) explore whether there is a linear relationship between two variables (p. 579). "The objective of correlation analysis, then, is to obtain a measure of the degree of linear association (correlation) that exists between the two variables" (Smith & Albaum, 2010, p. 306). We can measure correlation through the Pearson correlation coefficient directly through the Correl function in the Microsoft Excel software.

Smith and Albaum (2010) continue that degree – strength of correlation can be from 0 to 1, and direction of the correlation can be positive or negative with signs (+ or -). The correlation coefficient is however shown, only for the areas selected. To further test whether a coefficient is valid for the whole population we must test it. To do so, we need to find out the coefficient τ, which is an estimation of the ρ - population linear correlation coefficient. We can however, use coefficient τ as a basis to perform a hypothesis test for the coefficient *p.* This might require following, t-Distribution for a Correlation test (p. 38).

Weiss (2012) adds that we can call this testing procedure of hypothesis as Correlation T-test (p. 579). In our case, we will do correlation t-test with the P-Value approach which is explained by Weis (2012) and works as follows:

Step 1: The Null hypothesis $H_0 = p$, and the alternative hypothesis is:
H_1: $\rho \neq 0$ *or* $H_1 < 0$ *or* $H_1 > 0$
(Two tailed) (Left tailed) (Right tailed)

Step 2: Decide on the significant level α. In our case, $\alpha = 0{,}05$.

Step 3: Compute the value of the test statistic (has the t-distribution df = n – 2)

$$t = \frac{r}{\sqrt{\frac{1-r^2}{n-2}}}$$

Step 4: Consists of obtaining the ρ -value. In our case, we obtained the ρ -value through the technology which is one of the possible options listed in the theory

Step 5: If the $\rho \leq \alpha$, reject H_0, in all the other cases do not reject H_0 (p. 580).

"One-way analysis of variance is a hypothesis-testing technique that is used to compare means. Analysis of variance is usually abbreviated as ANOVA" (Weiss, 2012, p. 524).

Weiss (2012) continue that ANOVA provides methods for comparing the means of more than two populations. One-Way ANOVA has its name because it compares the means of variables for the population that result from a classification by one other variable, which is called the factor. This analysis relies on the F-distribution. F-distribution is typical for a right-skewed curve, called F-curve. There is infinite number of F-distributions, and we can define them by degrees of freedom. The first number is called the degrees of freedom for the numerator and the second, degrees of freedom for the denominator, therefore its sign df (p. 524 – 525).

In order to perform the hypothesis test to compare *k* population means, μ_1, μ_2, ….., μ_k, several assumptions have to be made:

1. Simple Random Samples
2. Independent Samples
3. Normal population
4. Equal population standard deviations

Step 1: The null and alternative hypotheses are, respectively,

H_0: $\mu 1 = \mu 2 = ...$ *U-k*

Hα: Not all the means are equal

Step 2: Decide on the significance level, α. In our case, $\alpha = 0{,}05$.

Step 3: Compute the value of the test statistic

$F = \frac{MSTR}{MSE}$, and denote F. To do so, construct a one-way ANOVA table:

***Table 2**: The ANOVA Table*

Source	SS	df	MS	F
Conditions	$SS_{conditions}$	$(k-1)$	$MS_{conditions}$	$\frac{MS_{conditions}}{MS_{error}}$
Subjects	$SS_{subjects}$	$(n-1)$	$MS_{subjects}$	$\frac{MS_{subjects}}{MS_{error}}$
Error	SS_{error}	$(k-1)(n-1)$	MS_{error}	
Total	SS_T	$(N-1)$		

***Source:** Weiss (2012, p. 536)*

Step 4: The F-statistic has df = (*k – 1, n – k*)

Step 5: If $\rho \leq \alpha$, reject H_0; otherwise, do not reject H_0

Step 6: Interpret the results of the hypothesis test

MSTR (treatment sum of square) - measures the variation among sample means
MSE (error mean square) - measures the variation within the samples
SSTR (treatment sum of squares) – treatments relate to different population
SSE (error sum of square) – errors pertain to variations within the population

The F-statistic - compares among the sample means MSTR to the variation within the samples, MSE. Weiss (2012) continues that "large values of F indicate that the variation among the sample means is large relative to the variation within the samples and hence that the null hypothesis of equal population means should be rejected" (p. 529 - 530). ANOVA analysis in our research were performed through the Microsoft Excel software, data function ANOVA.

4 FINDINGS

As discussed in the Methodology section, our quantitative research consists of two datasets. The key data and backbone of research are data gathered from the Digital Advice provider. In order to interpret these data and create a broader picture of the Digital Advice role within the consumer behaviour, we supported our main database by additional data coming from the ECID - Grid questionnaire which has provided our research with an extra data sets and offers a valuable insight about the product categories examined.

In the next pages, we will have a closer look at both parts of the research and analyse complex findings. We will start with a deep analysis of the ECID Grid - Questionnaire as we consider this as an only way we can correctly interpret and discuss our findings. Also, input from the ECID - Grid Questionnaire offers a valuable insight into consumer perception of Risk and Motivation within the different product categories. We should, however, keep in mind its limitation discussed within the Discussion section.

4.1 ECID GRID QUESTIONNAIRE RESULTS ANALYSIS

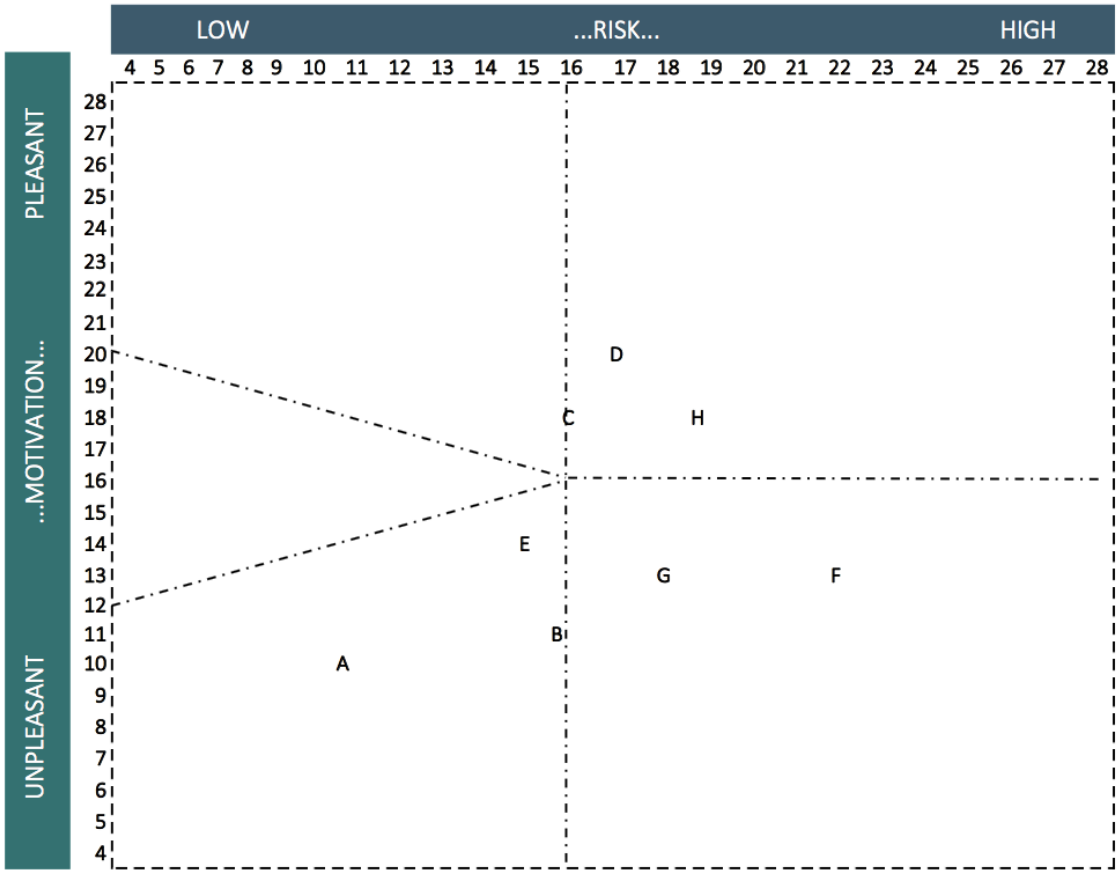
ECID Grid - Questionnaire was created through the Google Form online tool (https://docs.google.com/forms). The questionnaire was answered by 65 users in total and ran within a period of three days 16.10.2017 – 19.10.17. As pointed out before, this survey served as a complementary research to our main data coming from the Digital Advice provider. Being supportive data to our main datasets this data has limitation further discussed within the Discussion section. We should however, still describe and interpret interesting findings gathered through this process.

The total number of total respondents were 65, out of which (35) 53,8% of respondents were males and (30) 46,2% of respondents were females. From the age spectrum, a vast majority (39) 60% of respondents were from the Age group 25-34 years, followed by (23) 33,8% of respondents from the age group 18-24 years. Other respondents (3) without this Age rage were filter out. Age groups were created upon the Google Analytics segmentation scheme. Our main focus will be placed on the groups 18 -24 and 25 – 34. Both Age groups belong to the same generation – Generation Y.

As mentioned, the key purpose of the ECID Grid Questionnaire was to create an additional dimension so we can offer a better, more stable and complex explanation of the Digital Advice role in the changing online purchase environment. Concretely stimulate this environment. We were able to create this additional dimension and complementary data thanks to the theoretical input which was based on the Kraigher-Krainer (2012) standardized ECID Questionnaire displayed within the Appendix 1.

The perceived Risk and Motivation factors of the online purchase were found for the total of 8 product categories, namely Light Bulb, Blinds, TV, Notebook, Printer, Mattress, Washing Machine, Bicycle.

Grid 3: *The ECID Grid and Product Categories Coordinates*



Source: *Author's Survey, Author's Research*

Table 3*: Product Categories Coordinates | ECID Grid*

PRODUCTS		RISK	MOTIVATION		DA - Usage
Light Bulb	A	10.91	10.29	A	3.54
Blinds	B	15.94	10.51	B	4.63
TV	C	16.31	17.83	C	5.31
Notebook	D	17.40	19.52	D	5.26
Printer	E	15.26	13.63	E	5.28
Mattress	F	22.05	13.26	F	5.57
Washing Machine	G	18.03	13.26	G	5.68
Bicycle	H	18.68	17.77	H	5.42

Source: *Author's Survey*

The Grid 3. and Table 3., represent an overview of the overall survey's results. After extensive work with the ECID Grid from a theoretical and methodological perspective, we have finally visualized our additional research. Respondents have through the survey confirmed that product categories' coordinates are close to our initial expectations. To cover all 5 territories in the ECID Grid was not necessary since our main goal and focus, was to have enough categories with different location to effectively map differences in both changing dimensions of Risk and Motivation of the online purchase.

As can be seen in the Grid 3 and supportive Table 3., there are certain differences between the product categories which detailed description is necessary for a better understanding of the final results and holistic understanding of the problematic. We would once again like to make a connection to the Grid 2., placed in the Literature review of our thesis and describe not only following product categories but also the territories to which they belong.

A) Light Bulb

This is a typical representative of the 2nd territory, where consumers usually do not feel treat while purchasing a product. Products within this territory are called Convenience goods. The light bulb is associated with a lower level of the Risk factor, 10.91. This category is typical for its unattractiveness associated with a purchase and therefore, its online purchase indicates the lowest number of the Motivation/Pleasance, 10.29. In the 2nd territory of the ECID Grid, consumers look for basically anything what reduces acquisition costs. Consumer loyalty is usually connected with the item and store. Respondents need for personalized advice is as expected the lowest one, on a level of 3.54.

B) Blinds

Blinds are comparable to the Light Bulb category, with its level of perceived Motivation/Pleasance of 10.51, the purchase of the product category seems to be associated with unpleasant feelings. The blinds are among the respondents considered to be a bit riskier category. The perceived Risk associated with the online purchase of Blinds 15.94, can be from a theoretical perspective connected to the category complexity. For consumers, it might be troublesome to choose Blinds online without physically seeing/trying the product. Blinds product category is placed in the 2nd territory of the ECID Grid.

C) TV

TV product category is placed directly between the 1st and 4th territory of the ECID Grid. Since associations with the TV might be both negative and positive, we must be careful while saying that TV as a product, is naturally associated with a fun and leisure time. Our survey, however, showed that Motivation/Pleasance associated with the online purchase of this product category is pleasant, on the level of 17.83. There were neither prices presented during our research nor we did any scanning of the price sensitivity of our respondents. In general, we can assume that TV can be considered to be a more expensive and complex product which might be the reason for a higher level of the RISK connected to the online purchase, 16.31. Product categories in these territories are associated with customers with a higher technology push, focus on the shopping experience and higher brand loyalty.

D) ***Notebook***

Online purchase of the Notebook is among our respondents perceived as a pleasant one on the level of 19.52. We will discuss a potential reason for this in the next section of consumers' specifics. In general, we might say that personal purchase of the Notebook might be associated with fun and leisure time activities. Same as a purchase of the TV, purchase of Notebook is associated with a higher level of Risk factor 17.40. This might be once connected to technological complexity, price or combination of both. Notebook same as TV belong to the 4th territory on the ECID Grid – Specialty goods.

E) Printer

Respondents placed online purchase of the Printer within the 1st territory next to the Light Bulbs and Blinds product categories. They associated the online purchase with a higher level of Risk 15.26, possibly due to factors such as higher price or complexity of the product category. Respondents place a level of Motivation/Pleasance associated with purchase a bit higher on a level of 13.63 and therefore, still perceived the online purchase as an unpleasant one.

F) Mattress

The mattresses represent a product category which online purchase is among our respondents associated with the highest level of Risk factor 22.05. The risk could be associated with a level of comfort or possibly as a threat to health once not choosing the right product. We believe that this number might be significantly boosted by the fact that our respondents were placed into the artificially stimulated online environment. The perceived factor of Pleasance of the online purchase is the lowest ones, 13.26. According to the Grid 2, Mattresses belong to the Product category of Unsought Goods. The product categories within this territory tend to be complex and often need to be tailored to consumer's needs. Following our hypotheses introduced and described in the previous section, Mattresses are exactly the product category which should according to our theoretical understanding show the highest level of solution usage - conversion rate. This category is among our respondents also associated with the second highest need for personalized advice, 5.57.

G) Washing Machines

The level of perceived Motivation/Pleasance connected to the online purchase of the product is on an exactly the same level as the previous product category, 13.26. The level of perceived Risk, however, is on a significantly lower level 18.03. Washing Machines while being chosen wisely cannot have other risks besides financial or time risk. One can also easily buy a washing machine without a need to see the product in store. Need for a personalized advice is on the highest level, 5.68.

H) Bicycle

The product category of bicycles among our respondents shown the second highest level of perceived Risk 18.68. This can be once again connected to the fact that wrong choice would be annoying or that it is simply too hard to find the right bicycle online without a possibility to try it. Respondents, however, found the online purchase of the bicycles as a pleasant activity on the level of 17.77. Bicycles belong to the 4th territory - the Specialty goods which is typical for its specialized stores with the deep assortment and complement perks.

In the following sections, we will closely look at the differences between Genders and Age. In the Literature review section, we discussed certain dissimilarities related to consumers in the Digital Age. The fact that we ran the survey while trying to find out the perceived dimension of Risk and Pleasance associated with the online purchase, gave us a great opportunity to make a step further and examine some of these differences within other dimensions such as Gender and Age. By doing this, we can circulate theoretical understanding of the topic and build stable fundaments for the main part of our research.

Table 4: *Genders Specifics*

PRODUCTS	FEMALES			MALES			GENDER DIFFERENCE		
		RISK	MOTIVATION		RISK	MOTIVATION		RISK	MOTIVATION
Light Bulb	A	10.53	9.70	A	11.23	10.80	A	0.70	1.10
Blinds	B	15.30	11.07	B	16.49	10.03	B	1.19	1.04
TV	C	16.00	16.07	C	16.57	19.34	C	0.57	3.28
Notebook	D	17.77	18.87	D	17.09	20.09	D	0.68	1.22
Printer	E	15.27	12.90	E	15.26	14.26	E	0.01	1.36
Mattress	F	21.87	13.73	F	22.20	12.86	F	0.33	0.88
Washing Machine	G	18.03	13.47	G	18.03	13.09	G	0.00	0.38
Bicycle	H	18.90	16.77	H	18.49	18.63	H	0.41	1.86

Source: *Author's Survey*

As can be seen in the Table 4., in most of the products categories our female and male respondents selected comparable level of perceived factors of Risk and Pleasance associated with the online purchase of product categories. There are, however, a few differences which we should discuss further.

The biggest difference between Genders 3,28, is in the TV product category which as was explained in the section above belongs to the 4th territory of the ECID – Grid. This territory is well known for the product categories which are highly complex and technical. As this was mentioned in the theory, it is also visible within our survey. Men found in general, purchase of technical products (TV, Notebook, Printer) more attractive than women.

We must, however, be careful with this formulation since we did not use any statistical method to confirm or reject this finding at the moment. We can, however, see how complex might this problematic get and that it is crucial to further examined differences between genders and their possible impact on the role of Digital Advice tool.

While discussing results of the survey we should aim our attention to the very last but not least question dedicated to the perceived need for personalized advice. The Table 5., below displays need for personalized advice (Digital Advice) by Genders.

Table 5: *Difference in Digital Advice Usage Genders*

PRODUCTS	FEMALES		MALES		DIFFERENCES	
		DA - Usage		DA - Usage		DIFFERENCE
Light Bulb	A	3.50	A	3.83	A	0.33
Blinds	B	4.60	B	4.74	B	0.14
TV	C	5.50	C	5.69	C	0.19
Notebook	D	5.83	D	5.97	D	0.14
Printer	E	5.20	E	5.40	E	0.20
Mattress	F	5.50	F	5.57	F	0.07
Washing Machine	G	5.57	G	5.69	G	0.12
Bicycle	H	5.43	H	5.54	H	0.11

Source: *Author's Survey*

As can be seen from the Table 5., the greatest need to use personalized advice is within the notebook product category. As mentioned, this category is placed within the 4th territory of the ECID - Grid, Specialty goods. The territory is characterized by the perfect products, technology push and customer expertise.

In general, it can be said that differences are rather minor. The biggest difference between Genders' perceived need for personalized advice is within the category of Light Bulbs, category presented by the number, 0.33. While male representative would somehow welcome personalized advice female representative are closer to the point where they would reject such an advice. Within other products categories differences are minor. This, however, cannot be generalized and again serves only for a description and better understanding of the topic.

Table 6: *Age Groups Specifics*

PRODUCTS	18-24		25-34		AGE DIFFERENCE	
	RISK	MOTIVATION	RISK	MOTIVATION	RISK	MOTIVATION
Light Bulb	A 10.41	11.14	A 11.62	10.15	A 1.21	0.98
Blinds	B 15.27	10.59	B 16.87	10.54	B 1.60	0.05
TV	C 14.45	17.86	C 15.82	17.90	C 1.37	0.03
Notebook	D 16.27	21.41	D 17.31	18.28	D 1.03	3.13
Printer	E 13.91	15.27	E 14.77	13.05	E 0.86	2.22
Mattress	F 21.18	13.27	F 21.87	13.41	F 0.69	0.14
Washing Machine	G 16.36	14.09	G 18.08	12.87	G 1.71	1.22
Bicycle	H 19.00	18.59	H 19.00	17.00	H 0.00	1.59

Source: *Author's Survey*

Another dimension related to consumer's specifics section is the factor of Age. As was pointed out, there are certain differences between the generations and age groups which might be further reflected in consumer behaviour. Another factor which might influence the behaviour of the age group are ICTs which were available and used by the particular generations. Usage of the technology is for us the key factor while speaking about the differences between age groups. In this case, we had two datasets to connect. One represented by the data from the Digital Advice technology which are standardized by the Google Analytics and another one coming from the ECID Grid - Questionnaire. To match these dimensions, age segmentation offered by Google Analytics was used also in our survey. Since the vast majority of our respondents are from the age groups of (18 – 24) and (25 – 34) we are primarily working with the same generation – Generation Y. Once thinking about the ability to use technology, however, we believe that with age, usage of technology decreases which should be also visible within the same generation.

We believe this should be even more visible while comparing age groups with greater gaps, such as age groups which belong to the Elderly generation and age groups which belong to the Millennials. We will further research this statement within the Hypothesis a process.

In the Table 6., we could see that differences between age groups (18-24) and (25-34) are rather minor. The table, however, offers a few interesting findings. Difference between age groups, in the factor of perceived Risk, is the greatest within the TV product category 2.88, followed by Washing machine 2.18 and Mattresses category 2.11. In general, respondents

from the age group 25 – 34 seem to be more risk-averse toward the online purchase, while showing a higher level of risk almost in all categories.

While speaking about the factor of perceived Motivation/Pleasance connected to purchase, we can see that differences are comparable to the differences in the dimension of Risk. While in the case of Genders the biggest difference was in the TV category, in the Age section the first place belongs to the Notebook product category, with a difference of 3.13 between the researched Age groups.

Table 7: *Difference in Digital Advice Usage Age Groups*

PRODUCTS	18-24		25-34		DIFFERENCES	
	DA | Usage		DA | Usage		DIFFERENCE	
Light Bulb	A	3.32	A	3.64	A	0.32
Blinds	B	4.50	B	4.74	B	0.24
TV	C	5.23	C	5.46	C	0.23
Notebook	D	5.73	D	5.13	D	0.60
Printer	E	4.91	E	5.51	E	0.60
Mattress	F	5.27	F	5.74	F	0.47
Washing Machine	G	5.41	G	5.77	G	0.36
Bicycle	H	5.23	H	5.59	H	0.36

Source: *Author's Survey*

The need for personalized advice (Digital Advice) displayed in the Table 7., – Age Groups Specifics, shows that the largest variability is within the Printer product category followed by the Notebook product category. It is interesting to see that need for personalized advice for the age group (18 – 24) is greatest in the Notebook product category. This is also the category where the age group experienced the highest level of Motivation/Pleasance factor associated with the online purchase. We will further discuss this finding while further working on the hypotheses with the main data from the Digital Advice technology.

It is crucial to understand that the ECID Grid - Questionnaire is only a minor part of our research. Being an additional dimension which we need for delineation of our main data, offers thought-provoking insight into respondents' perception of the online purchase and need for personalized advice. We will recover the knowledge gathered in this section while analysing the key hypotheses in the section below.

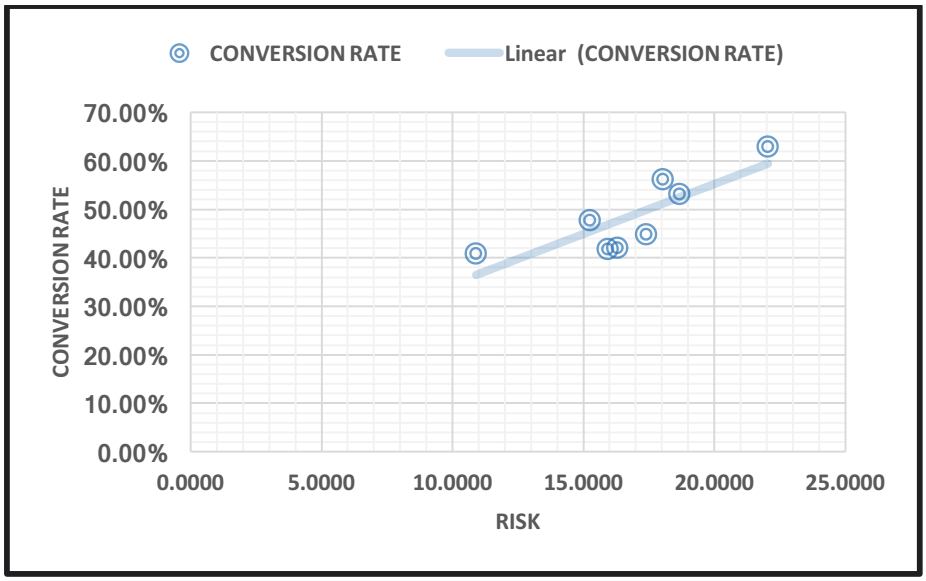
4.2 HYPOTHESES TESTING AND ANALYSIS

As we mentioned several times before, the centre of our research are data gathered through the Digital Advice technology and Google Analytics tool. The process of gathering the data was discussed in the Methodology section. Initial explanation of all hypotheses which we will be analysed, is offered within the Hypothesis formulation section.

H1: Usage of the Digital Advice solution increases with an increase in the perceived Risk factor associated with the online purchase

H0: Usage of the Digital Advice solution does not increase with an increase in perceived level of Risk factor associated with the online purchase

Graph 2: *Risk & Conversion Rate*



Source: *Author's Research*

Table 8: *Risk & Conversion Rate*

PRODUCTS		RISK	CONVERSION RATE
Light Bulb	A	10.91	40.88%
Blinds	B	15.94	41.79%
TV	C	16.31	42.04%
Notebook	D	17.40	44.76%
Printer	E	15.26	47.64%
Mattress	F	22.05	62.85%
Washing Machine	G	18.03	56.18%
Bicycle	H	18.68	53.15%
Number of Sessions			52057
Number of Users		65	46870

Correlation - r	*0.823*
Significance ~ r	*0.001*

Source: *Author's Survey & Digital Advice Technology adjusted Data | Author's Research*

As the Graph 2. and supportive Table 8., indicate there is a strong, positive and significant correlation between the perceived level of Risk connected to the online purchase and usage of the Digital Advice technology measured through the conversion rate. Therefore, we do reject the null hypothesis and accept the alternative hypothesis H1. At this point, we present one of the most important findings of our research, since we confirmed our initial theoretical assumption that usage of Digital Advice solution is correlated with the perceived level of Risk factor connected to the online purchase.

As discussed earlier in the theoretical part of our thesis, the factor of Risk has a crucial impact in the Ask category within five A's scheme discussed by Kotler et al. (2016), as well as Search plus Alternative comparison stages within the Decision-making process discussed by Solomon et al. (2006). For these reasons, we can confirm that Digital Advice has its rightful role in the stages mentioned above, while purchase being associated with a higher level of perceived Risk.

We confirmed previous theoretical findings from Kotler et al., (2016) who said that industries with a higher purchase risk, tend to have longer and more complex customer path. Moreover, this finding also confirmed research done by Wu (2007) who found out that pre-visit website intention is usually greater in high involvement product categories - the product categories with a higher level of Risk.

Higher level of Risk is especially characterized for the product categories in the 4th and 3rd territory of the ECID Grid. Following the theoretical knowledge listed above and this critical finding, we can say that especially in these two territories has Digital Advice its rightful place. The highest level of Risk perceived is associated with the product category of Matrasses, which at the same time, indicates the highest level of conversion rate. This once again proves our current finding.

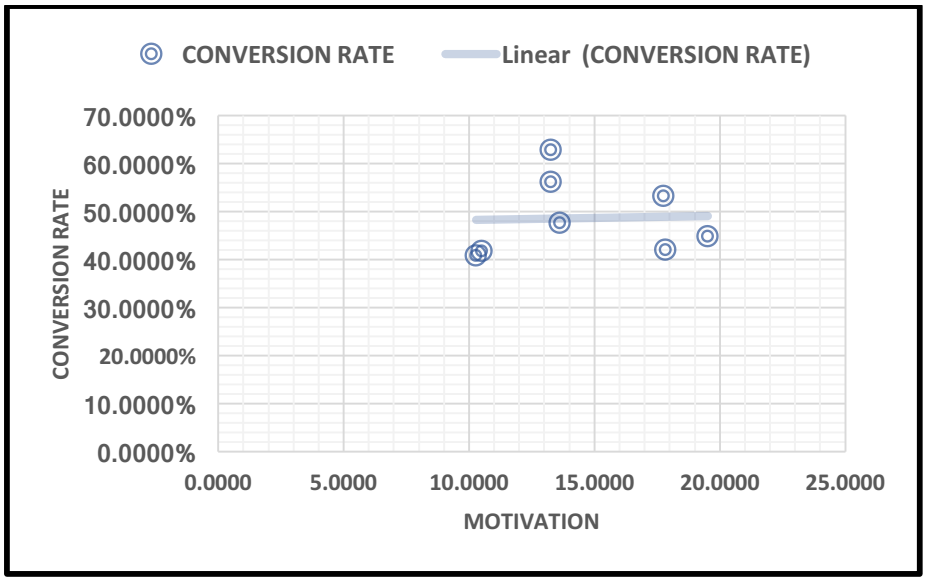
One can see a connection to the offline world where for the product categories associated with a higher level of Risk such as Washing Machine, Mattress, TV or the others mentioned by Kraigher-Krainer (2012) such as Cell Phone, Insurance; consumer tends to seek professional and tailored advice from a sales associate. In the online environment, however, the presence of a sales associate is missing. If there is any sales associate, for example on a chat or phone, then it is usually impossible to answer every client on a sufficient level. Moreover, with an extensive product offer which is caused mainly by the push for constant innovation process and demand for almost fully tailored products, sales associate might not be able to offer a relevant recommendation due to human factor limitation of not knowing all the products available.

Digital Advice technology can knowledge-wise subsidize the most experienced sales associate within all possible product categories but as our finding indicates its greatest impact is in the products categories with a higher level of Risk when such a personized advice can deliver true added value for the consumer.

H2: Usage of the Digital Advice solution decreases with an increase in the perceived Motivation factor associated with the online purchase
H0: Usage of the Digital Advice solution does not decrease with an increase in perceived Motivation associated with the online purchase

Being same as the Risk factor visible in five A's scheme and multiple stages of Decision-making process. Moreover, being based on the extensive theoretical knowledge, concretely that consumers with a lower level of Motivation or perceived pleasance of the purchase do a less extensive search, we assumed that with a decrease in the perceived Motivation connected to the online purchase, Digital Advice usage would move exactly in the opposite way and therefore, a significant negative correlation would be visible.

Graph 3: *Motivation & Conversion Rate*



Source: *Author's Research*

Table 9*: Motivation & Conversion Rate*

PRODUCTS		MOTIVATION	CONVERSION RATE
Light Bulb	A	10.29	40.88%
Blinds	B	10.51	41.79%
TV	C	17.83	42.04%
Notebook	D	19.52	44.76%
Printer	E	13.63	47.64%
Mattress	F	13.26	62.85%
Washing Machine	G	13.26	56.18%
Bicycle	H	17.77	53.15%
Number of Sessions			52057
Number of Users		65	46870

Correlation - r	*0.037*
Significance ~ r	*0.931*

Source: *Author's Survey & Digital Advice Technology adjusted Data | Author's Research*

As we can see from the Graph 3. and its supportive Table 9. Motivation/Pleasance and Conversation Rate, results are the exact opposite of our initial assumptions. According to the data, there is 0.03 positive linear correlation, therefore, there is almost no relationship between Pleasance factor of the online purchase and the Digital Advice solution usage. Since we do not reject the null hypothesis within the 2nd assumption, we should further discuss, why our data reflecting the real-life usage of the solution simply offer a different explanation than the one built upon the Literature review.

We can assume that reason for this might be hidden in the fact that motivation as such can significantly vary from an individual to individual. On the contrary, already discussed factor of Risk, might differ in a considerably less extensive way, since consumers are usually risk sensitive and therefore, feel a similar level of treat while buying a particular product category. Perception of Risk connected to the purchase might be strengthened by the 'online' environment of our research.

We can also argue that Risk and Motivation of the purchase are to a certain extent interconnected factors. People who perceived purchase as a pleasant activity are naturally motivated to use extensive research while searching for the best product. This can automatically affect the level of Risk which as previously confirmed would have an impact on the usage of the solution. Vice versa, a greater amount of Risk can boost the factor of Motivation to find out more about the product category. In this case, however, consumer would be motivated to do the research because of the level of risk and not because of their own willingness to do so which would bring us to the clash with the theoretical definition of Motivation associated with the purchase. Correlation between perceived level of Risk and Motivation was not confirmed in our study.

Another reason can be that consumers with no Motivation towards the purchase can look for another decision factors such as brand or number of positive reviews from other users. This could be a subject for further discussion and research. While keeping these results for further discussion, at this point, we do not reject the null hypothesis and say that there is no relation between Motivation factor and usage of the Digital Advice technology.

H3: Usage of the Digital Advice solution does depend on the factor of Gender
H0: Usage of the Digital Advice does not depend on the factor of Gender

At the beginning of the thesis, we clearly pointed out that all the questions related to consumer behavior always start and end with complex and multidimensional thinking processes of the consumer. Being inspired by our theoretical knowledge and trying to define the role of the Digital Advice in consumer Decision-making process, we saw as a necessary step to discover an impact of the consumers' specifics such as Gender or Age on the Digital Advice solution.

Our assumption is built on theoretical fundaments which claim that factor of Gender influences consumer behaviour in the digital environment and as such might have an impact on the role of Digital hypothesis of our thesis is therefore, looking at the impact of Gender on the role of the Digital Advice within the online consumer behaviour.

***Table 10**: Conversion Rate & Genders*

PRODUCTS		CONVERSION RATE | FEMALES	CONVERSION RATE | MALES
Light Bulb	A	42.17%	37.09%
Blinds	B	41.98%	29.26%
TV	C	37.33%	41.97%
Notebook	D	46.57%	44.44%
Printer	E	45.13%	43.49%
Mattress	F	63.43%	64.74%
Washing Machine	G	51.17%	50.68%
Bicycle	H	51.31%	52.42%
Number of Sessions		24470	27587
Number of Users		21961	24909

***Source:** Digital Advice Technology adjusted Data*

***Table 11**: Need for Personalized Advice & Genders*

PRODUCTS		DA | FEMALES	DA | MALES
Light Bulb	A	3.50	3.83
Blinds	B	4.60	4.74
TV	C	5.50	5.69
Notebook	D	5.83	5.97
Printer	E	5.20	5.40
Mattress	F	5.50	5.57
Washing Machine	G	5.57	5.69
Bicycle	H	5.43	5.54
Number of Sessions			
Number of Users		30	35

***Source:** Author's Survey*

***Table 12**: ANOVA Conversion Rates \| Genders*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.001405865	1	0.001405865	0.157772011	0.697205701	4.600109937
Within Groups	0.124750341	14	0.008910739			
Total	0.126156206	15				

***Source:** Author's Research*

***Table 13**: ANOVA Need for Personalized Advice \| Genders*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.104852608	1	0.104852608	0.199469404	0.661980246	4.600109937
Within Groups	7.359206349	14	0.525657596			
Total	7.464058957	15				

***Source:** Author's Research*

As can be seen from both the Table 12., ANOVA Conversion Rates Gender which has its database within the supportive Table 10, the factor of Gender does not have a significant impact on the Digital Advice solution usage measure through the conversion rate. Due to ANOVA analysis, we do not reject the null hypothesis. This is also confirmed by the additional dimension of the sessions displayed by Table 14 and analysed within the ANOVA table 15. In total, the Males use solution more but statistically we did not confirm differences between these two groups.

Confirmation of the previous findings is additionally done through the comparison of the factor of need for the Digital Advice between genders displayed by the Table 11., and further analysed by the ANOVA in Table 13., ANOVA Need for Personalized Advice between Genders. Thanks to this finding we once again confirm non-rejection of the null hypothesis.

Due to finding itself and additional confirmations, we can formulate our conclusion as follows: Usage of the Digital Advice solution is not depended on the factor of Gender and therefore, the role of the Digital Advice in consumer behaviour is not significantly influenced by this factor.

In the Literature review, we build a strong theoretical base for the 3rd hypothesis and we should discuss why our assumption based on these findings was not confirmed. We already know that purchase path between women and men differs. While the women's purchase path looks more like a spiral, the men's purchase path is straight-forward.

We discussed this theoretical assumption within the methodological part where we said that while assuming both spiral paths with multiple touchpoints and more straightforward path with the limited number of touchpoints, usage of the Digital Advice might paradoxically be the same. Although the reason for its usage is different, at one point Digital advice can serve as a tool which can speed up the purchase process within the straightforward men's path. On the other hand, the solution can serve as an additional touch point within the complex women's path. This can at the end, cause the same outcome to occur and therefore, indicate the same importance of the Digital Advice to both genders.

As we can see at the ANOVA Table 15. and its supportive data Table 14., there is no difference between the genders within our dataset which consist of pre-appointed product categories. This finding, therefore, supports our previous conclusion about the Gender & Digital Advice dependency. What is, however, interesting is the number of Sessions displayed within the Table 14. In some of the product categories, we can see differences of the thousands of sessions between the genders. The dataset as such might not indicate statistically significant differences, but the further focus should be placed on the sub-categories which are at the first sight significantly different.

***Table 14**: Sessions Started & Genders*

PRODUCTS		SESSIONS| FEMALES	SESSIONS | MALES
Light Bulb	A	508	3345
Blinds	B	549	262
TV	C	1865	3177
Notebook	D	1571	1813
Printer	E	1236	3350
Mattress	F	6553	4338
Washing Machine	G	4998	3461
Bicycle	H	7190	7841
Number of Sessions		24470	27587
Number of Users		21961	24909

***Source:** Digital Advice Technology adjusted Data*

***Table 15**: ANOVA Sessions | Genders*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	607264.73	1	607264.73	0.099074208	0.757585651	4.600109937
Within Groups	85811498.24	14	6129392.731			
Total	86418762.97	15				

***Source:** Author's Research*

Thinking about the different behaviour of Genders in particular subgroups, brought us to the additional finding which is due to its high importance part of the main hypothesis rather than Additional Finding section. The finding is being displayed below in Table 16., and further examined by the ANOVA Tables 17 and 18.

***Table 16**: Sessions Genders | Electro & Home Subcategories*

PRODUCTS		SESSIONS| FEMALES	SESSIONS | MALES
Light Bulb	A	508	3345
TV	C	1865	3177
Notebook	D	1571	1813
Printer	E	1236	3350
Number of Sessions		**5180**	**11685**
Number of Users		**4792**	**10848**

PRODUCTS		SESSIONS| FEMALES	SESSIONS | MALES
Blinds	B	549	262
Mattress	F	6553	4338
Washing Machine	G	4998	3461
Number of Sessions		**12100**	**8061**
Number of Users		**10974**	**7305**

***Source:** Digital Advice Technology adjusted Data*

***Table 17**: ANOVA Sessions | Genders | Electro Product Category*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	5287794.151	1	5287794.151	11.83938883	0.013786727	5.987377607
Within Groups	2679763.742	6	446627.2904			
Total	7967557.893	7				

***Source:** Author's Research*

***Table 18**: ANOVA Sessions | Genders | Home Product Category*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2718392.264	1	2718392.264	0.379841547	0.571033352	7.708647422
Within Groups	28626592.21	4	7156648.052			
Total	31344984.47	5				

***Source:** Author's Research*

From the results displayed in the Tables (16., 17., 18.) above, we confirmed the significant difference between Genders' Sessions started within the Technical product sub-category. This is the crucial finding for our understanding of relationship between the Gender and Digital Advice solution. This should not be a reason to reject or confirm our initial hypothesis, but rather accept other factors which might influence dependency between these two variables. It seems that factor of Gender might truly have an impact on the role of Digital Advice while being affected by the character of the product category and its target users.

By our additional discovery, we can confirm theoretical finding mentioned by Kotler et al., (2016) who said that main domain of males' consumers is electric appliances which they simply buy more than women do. Combined our previous assumptions we can also say that role of Digital Advice might and should reflect habits of target groups, such as one presented before.

H4: Usage of the Digital Advice solution does depend on the factor of Age
H0: Usage of the Digital Advice does not depend on the factor of Age

Next basic dimension of demographic segmentation is the factor of Age. The factor of Age same as Gender was subject of our theoretical research within the Literature review section. Due to limitation of our research we focused our attention on two groups which were created upon Google Analytics standardized Age Group Scaling Process – group A: 18 – 24 years, group B: 25 – 34 years. Furthermore, we compared Digital Advice usage between generations.

Although being discussed in the light of different generation we might still conclude the most important idea which says that factor of Age has an impact on the Digital Advice technology and therefore, usage of digital tools in general. Following this theoretical statement, we formed assumption into our 4th hypothesis: Usage of Digital Advice solution measured through the conversation rate is depended on the factor of Age.

***Table 19**: Conversion Rate & Age Groups*

PRODUCTS		CONVERSION RATE | 18-24	CONVERSION RATE | 24-35
Light Bulb	A	38.84%	38.97%
Blinds	B	36.69%	34.36%
TV	C	37.17%	40.87%
Notebook	D	53.99%	38.48%
Printer	E	39.62%	42.74%
Mattress	F	63.63%	62.47%
Washing Machine	G	50.04%	47.79%
Bicycle	H	52.67%	49.39%
Number of Sessions		6368	11192
Number of Users		5367	9986

***Source:** Digital Advice Technology adjusted Data*

***Table 20**: Need for Personalized Advice & Age Groups*

PRODUCTS		DA | 18-24	DA | 25-34
Light Bulb	A	3.32	3.64
Blinds	B	4.50	4.74
TV	C	5.23	5.46
Notebook	D	5.73	5.13
Printer	E	4.91	5.51
Mattress	F	5.27	5.74
Washing Machine	G	5.41	5.77
Bicycle	H	5.23	5.59
Number of Sessions			
Number of Users		23	39

***Source:** Author's Survey*

Table 21: *ANOVA Conversion Rate | Age Groups*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.001934156	1	0.001934156	0.219718498	0.64646984	4.600109937
Within Groups	0.123240326	14	0.00880288			
Total	0.125174482	15				

Source: *Author's Research*

Table 22: *ANOVA Need for Personalized Advice | Age Groups*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.24970871	1	0.24970871	0.464799814	0.506511941	4.600109937
Within Groups	7.521349692	14	0.537239264			
Total	7.771058402	15				

Source: *Author's Research*

As it is shown in Table 21, ANOVA Conversation Rate Age Groups, which has its database within the Table 19., there is no dependency between the Age and Digital Advice solution usage measure through the conversation rate. This is once again confirmed by the Table 22., ANOVA Need for Personalized Advice which has its database within the Table 20. With both complementary findings, we do not reject the null hypothesis, therefore, we at this point do not confirm the relationship between the factor of Age and role of Digital Advice.

Once again, we should rediscover what could be the major cause of the result. In the Literature review, was mentioned that every generation and the subgroups of that generation share certain connection due to the major events which have shaped their lives and behaviour. This statement shall find no boundaries within the definition of what does belong to the major events. We can be very confident and say that evolvement of ICTs, is one of these major events which have a significant impact on the behaviour of consumers among the generations.

The Literature review offered insight on how fast have the ICT systems evolved over the past decades. As an example, for the new generation being born after the year 2000 in the developed countries, the world without basic technologies such as notebook, mobile or stable internet connection simply does not exist. Since the pace of the innovation is faster than ever before we assumed that also minor changes within the factor of Age might be reflected on the usage and consequentially on the role of the Digital Advice in consumer behavior. We have to, however, reflect the fact that Age categories within our research belong to the same generation – Generation Y. Problematic of the Generations is discussed in the paragraph below.

***Table 23**: Conversation Rate & Generations*

PRODUCTS		GENERATION Y (18 - 24)(25 - 34)	GENERATION X (35-44)(45-54)	BABY BOOMERS | ELDERLY (55-64)(65+)
Light Bulb	A	38.88%	37.78%	33.96%
Blinds	B	35.12%	46.41%	33.68%
TV	C	39.48%	42.36%	39.34%
Notebook	D	45.20%	43.84%	46.44%
Printer	E	41.87%	43.17%	45.93%
Mattress	F	62.87%	62.96%	67.40%
Washing Machine	G	48.44%	52.54%	51.49%
Bicycle	H	50.52%	52.48%	52.69%
Number of Sessions		**17560**	**19762**	**14735**
Number of Users		**15353**	**17551**	**13966**

***Source:** Digital Advice Technology adjusted Data*

***Table 24**: ANOVA Conversion Rate \| Generations*

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.002	2	0.001152282	0.130598429	0.878277291	3.466800112
Within Groups	0.185	21	0.008823091			
Total	0.188	23				

***Source:** Author's Research*

We were very confident that with greater differences between age groups or more distanced generations our initial hypothesis would be confirmed. Mainly due to the theoretical knowledge which says that Elderly usage of all digital tools is in general rather limited and on contrary, Millennials usage of digital tools is on contrary, extensive habit on a daily basis. We naturally assumed that usage of the Digital Advice technology would be also influenced by this fact. As can be seen in Table 24. and additionally, in the supportive Table 23., we did not reject the null hypothesis of 4th hypothesis within our research, and therefore, once again did not confirm dependency between the factor of Age and Digital Advice.

The reason for this unexpected result might be once again hidden in specifics of the consumer journey. While for the Generation Y, solution represents additional step, for the Elderly, solution might be something they need in order to make a more confident purchase. We would recommend further qualitative analysis of these findings since it contradicts with the theoretical dogma of Generations and their usage of technologies.

If we look back to the data in Table 19., which serves as the database for our ANOVA Conversion Rate Age Groups Analysis, our attention might be aimed at the product category of Notebooks. The greatest difference in solution usage measured through the conversion rate is 15% between the researched Age Groups.

Paradoxically, older age group B, 25 -34, has a lower level of advisor usage than our first age group A, 18 – 24. This bring us to our initial question of Digital Advice while having different level of Risk and Motivation involved. In this case, however, we might paradoxically see younger respondents might perceive a higher level of risk, since they seek

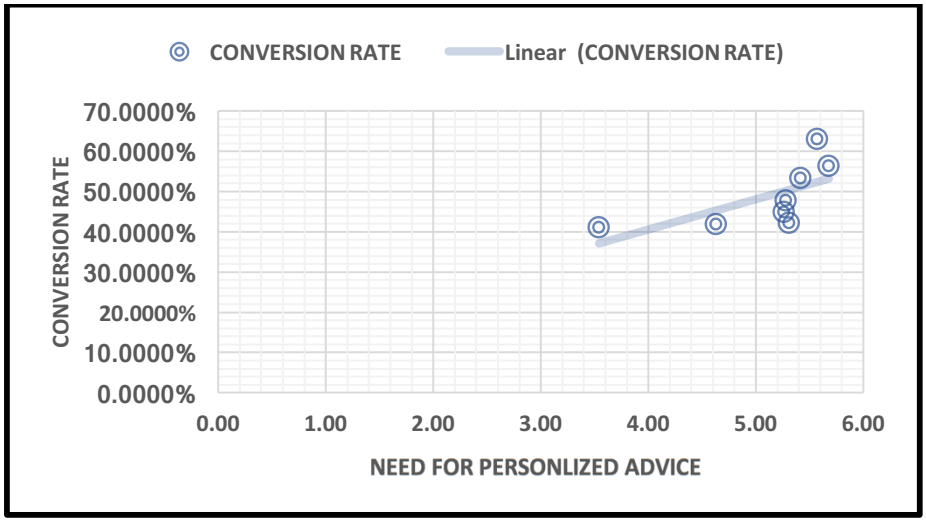
personalized advice more than respondents from the older group. Therefore, we might say that for some to us hidden reason, they seek a personalized advice in this highly technical category and as a possible consequence of the same or multiple reasons use and trust the Digital Advice technology more.

We cannot support this assumption statistically, but the relevancy of the product category for the particular subgroups seems to be the hidden factor which might cause these anomalies to occur. We will recirculate this question within the Discussion section.

H5: Usage of Digital Advice solution is depended on the perceived need for personalized Advice.
H0: Usage of Digital Advice solution is not depended on the perceived need for personalized Advice.

Our 5th hypothesis is looking for a connection between the need for a personalized advice (Digital Advice) and actual usage of the solution. The relationship between these two variables is displayed on the Graph 4. below.

***Graph 4**: Need for Digital Advice & Conversion Rate*



***Source:** Author's Research*

***Table 25**: Digital Advice & Conversion Rate*

PRODUCTS		DIGITAL ADVICE	CONVERSION RATE
Light Bulb	A	3.54	40.88%
Blinds	B	4.63	41.79%
TV	C	5.31	42.04%
Notebook	D	5.26	44.76%
Printer	E	5.28	47.64%
Mattress	F	5.57	62.85%
Washing Machine	G	5.68	56.18%
Bicycle	H	5.42	53.15%
Number of Sessions			52057
Number of Users		65	46870

Correlation - r	*0.657*
Significance ~ r	*0.077*

***Source:** Author's Survey & Digital Advice Technology adjusted Data | Author's Research*

As the Graph 4. and its supportive database in Table 25., show there is a strong correlation between a need for personalized advice and conversion rate. However, the relationship between these variables is not significant, therefore, we cannot reject the null hypothesis. We should further discuss what could be the reason behind this result.

Once looking at the supportive table, we can see that for the product categories which belong to the 1st and 2nd territory of the ECID Grid (Light Bulb and Blinds) the need for personalized advice is lower. However, only the product category of Light Bulb is need officially under the value of 4, which is the neutral value on the semantic scale offered. This means that respondents would in all other product categories welcomed personalized advice from an expert. In some of the cases a vaguely higher level of the need for personalized advice is connected with a lower level of conversion rate, therefore the relationship between these two variables is difficult to prove.

We believe that with a bigger number of products categories from different sections, we would be able to confirm this relationship. This being said we can only rely on the statistically proven data which at this point, do not reject the null hypothesis and therefore, we cannot confirm the relationship between the need for personalized advice and usage of the Digital Advice solution measured through the conversion rate.

We should be at this point very careful while connecting need for personalized advice gathered through the survey to its actual usage in the real life. There is no secret that consumers and people in general, say one thing but do the other. We dedicated a few pages within the Findings section to the question of human rationality which we will discuss at the later stage, but at this point, we can remind ourselves how complex and multidimensional consumer thinking process is. Therefore, we have to take into account various possibilities about respondents understanding of a "need for personalized advice" in digital environment and reliability of their answers.

It is, however, important to take into account the strong correlation between these two variables. This relation basically says that once consumers seek advice, they would also welcome such an advice in form of the Digital Advice recommendation.

We will try to clarify and enrich this and other main hypotheses with extra findings presented in next section of Additional Findings.

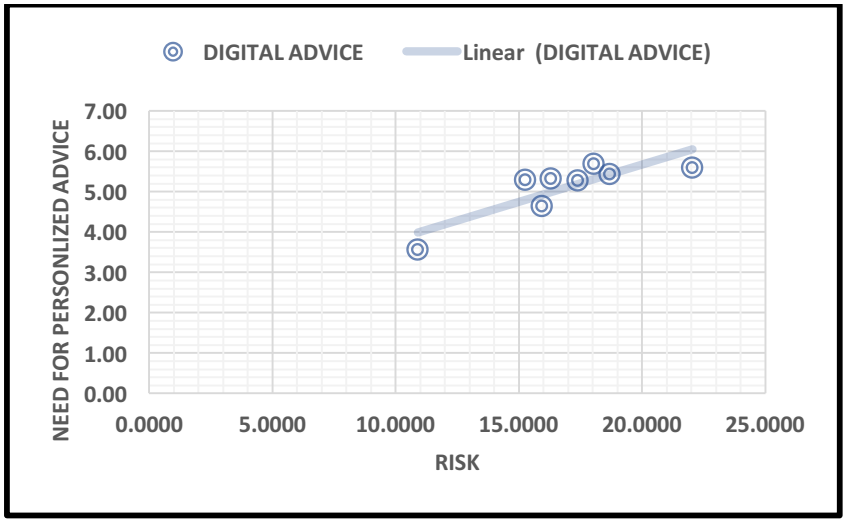
4.3 ADDITIONAL FINDINGS

While analysing the main hypothesis of our research, we have come to a few additional and very thought-provoking findings which might enrich results of our main hypotheses and developed our discussion about the topic.

In the following section, we will in details go through these findings and point out the most important aspect which should support the main goal of our thesis and as such describe the role and impact of the Digital Advice within the consumer behaviour.

Risk & Need for Personalized Advice

Graph 5: *Risk & Need for Personalized Advice*



Source: *Author's Research*

Table 26*: Risk & Need for Personalized Advice*

PRODUCTS		RISK	DIGITAL ADVICE
Light Bulb	A	10.91	3.54
Blinds	B	15.94	4.63
TV	C	16.31	5.31
Notebook	D	17.40	5.26
Printer	E	15.26	5.28
Mattress	F	22.05	5.57
Washing Machine	G	18.03	5.68
Bicycle	H	18.68	5.42
Number of Sessions			
Number of Users		65	65

Correlation - r	*0.842*
Significance ~ r	*0.009*

Source: *Author's Survey | Author's Research*

One of the additional findings which our research brought to the table and should be discussed further is discovery shown in the Graph 5., with its database in the Table 26. This finding is connected to the 1st hypothesis of our thesis focused on the relation between Risk and Usage of the solution. Moreover, it is also connected to the 5th hypothesis which

discussed the relation between need for personalized advice and actual usage of the Digital Advice solution.

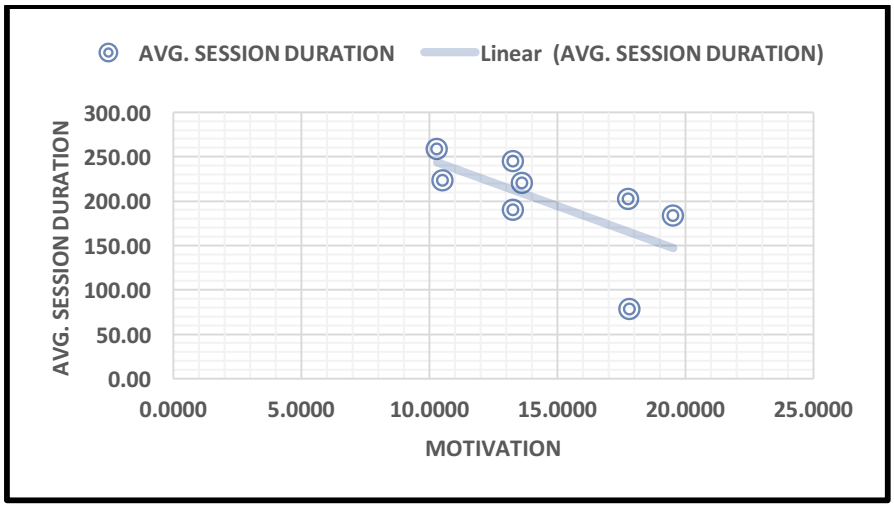
Within the 1st additional finding, we confirmed a strong positive and significant correlation between the level of perceived Risk and the perceived need for the Digital Advice. Both, the usage of the solution and need for personalized advice are according to our findings depended on the level of risk connected to the certain category.

There is a significant positive correlation between risk and perceived need for a personalized advice. There is also a significant positive correlation between the factor of Risk and usage of Digital Advice technology. However, the correlation between these two factors as mentioned was not confirmed. We should further discuss what could be the case. We would recirculate the conclusion from previous which indicated that numbers representing the need for personalized advice are rather cumulated to the positive right tale of the semantic scale since respondents would in the hypothetical situation welcomed personalized advice in most of the product categories. The small differences afterward might require a higher number of product categories to confirm our initial assumption. Another important point which we should mention are all the other factors which might influence usage of advisor and which we have not covered within the research.

Although the findings within the research are clearly based on the data and statistical methods discus within methodology and therefore, we did not reject the null hypothesis within the 5th hypothesis, it is critical that we enrich our initial hypothesis by this outcome. This is once again an important discovery and we should further use it while speaking about the Role and impact of the Digital Advice on the consumer behaviour.

Motivation & Average Session Duration

Graph 6*: Motivation & Average Session Duration*



Source: *Author's Research*

***Table 27**: Motivation & Average Session Duration*

PRODUCTS		MOTIVATION	AVG. SESSION DURATION
Light Bulb	A	10.29	257.79
Blinds	B	10.51	222.91
TV	C	17.83	77.74
Notebook	D	19.52	183.08
Printer	E	13.63	220.06
Mattress	F	13.26	244.57
Washing Machine	G	13.26	189.64
Bicycle	H	17.77	201.46
Number of Sessions			52057
Number of Users		65	46870

Correlation - r	*-0.653*
Significance ~ r	*0.079*

***Source:** Author's Survey & Digital Advice Technology adjusted Data | Author's Research*

Another additional finding is connected to the 2nd main hypothesis of our thesis which assumes that usage of the solution measured by the conversion rate is negatively correlated with the factor of Motivation. The 2nd hypothesis goes as follows, the usage of the solution increases with the decrease in the factor Motivation/Pleasance associated with the online purchase.

The background of this hypothesis can be found in the Literature review. We assumed that decreasing pleasance towards the online purchase will be simply reflected in using tools such as Digital Advice which might make the Ask stage, Search and Comparing alternatives process faster and less difficult for the end consumer. Despite strong theoretical background, we did not reject the null hypothesis within the 2nd hypothesis of our work. On contrary, we found out a positive very weak, correlation between motivation and usage of advisor measured through the conversion rate.

For the reasons mentioned before, we find our next discovery even more critical to our research. Until now we have been working mostly with our key attribute, conversion rate which in our understanding serves as solution usage indicator. While trying to discover topic on a deeper level we have combined also other metrics which from the main database coming from the Digital Advice provider.

One of the most important additional findings coming from such a combination is displayed within the Graph 6. with its database in Table 27. The 2nd additional finding was discovered while comparing the Pleasance/Motivation of online purchase Pleasance and Average session duration. The Average session duration says how many seconds on average consumer spends within the solution. As shown above, there is a strong negative, no significant correlation between avg. sessions spent in advisor and factor of purchase Motivation/Pleasance. We can formulate the outcome as follows; with increasing motivation, the average number of seconds spent in the advisor decreases. Following this logic, we might say that consumer tends to spend more time within the product categories with a lower level of pleasance towards the purchase. Despite the fact that correlation is not significant, we should further invest our attention and time to offer an explanation to this discovery.

We might at this point, however, only collaborate what might the case that product categories which are connected with a lower level of pleasance towards the purchase are connected with an extensive time of users spent within the Digital Advice tool. One explanation might be that consumers in these categories want to go through as least touchpoints as possible to naturally speed up the decision-making process connected to an unattractive purchase. The main purpose of the Digital Advice is to help the consumer find the best product or service and therefore, make the whole journey seamless and less tiring. With this in mind, we might say that consumer who is planning to buy a product within these for most users' unattractive product categories, might look for a shortcut which can be presented by the Digital Advice solution. The consumer then might be willing to spend more time by exploring this 'shortcut' because it might be his or her main decision point.

We spent an extensive part of Literature review by describing heuristic and irrationality of decision-makers. We will also dedicate part of the Findings section to this topic, but we shall once again stress its almost philosophical input and importance for our thesis. We mentioned authors such as Tversky and Kahneman, who said that people once being faced with greater cognitive effort rather choose the easier option. This is exactly what these findings in our opinion demonstrate. The consumer tends to spend more within the advisor because it might be possible the only touchpoint which help him or her decide without an extensive search on other places within the digital environment such as forums, videos, tutorials, blogs. It is important to point out that we do not say that consumer does not visit these touchpoints. He or she might visit them but since motivation is lower he or she might be less willing to spend time on this particular topic and therefore, use a shortcut in form of the Digital Advice tool.

Motivation & Need for Personalized Advice

Table 28: *Need for Personalized Advice & Motivation | Age Group*

PRODUCTS		MOTIVATION | 18 - 24	DA | 18 - 24
Light Bulb	A	9.70	3.32
Blinds	B	11.07	4.50
TV	C	16.07	5.23
Notebook	D	18.87	5.73
Printer	E	12.90	4.91
Mattress	F	13.73	5.27
Washing Machine	G	13.47	5.41
Bicycle	H	16.77	5.23
Number of Sessions			
Number of Users		23	23

Correlation - r	*0.882*
Significance ~ r	*0.011*

Source: *Author's Survey | Author's Research*

***Table 29**: Need for Personalized Advice & Motivation | Females*

PRODUCTS		MOTIVATION | FEMALES	DA | FEMALES
Light Bulb	A	9.70	3.50
Blinds	B	11.07	4.60
TV	C	16.07	5.50
Notebook	D	18.87	5.83
Printer	E	12.90	5.20
Mattress	F	13.73	5.50
Washing Machine	G	13.47	5.57
Bicycle	H	16.77	5.43
Number of Sessions			
Number of Users		30	30

Correlation - r	*0.882*
Significance ~ r	*0.012*

***Source:** Author's Survey | Author's Research*

In the next additional finding, we will stay in the field of Motivation/pleasance and its role and importance to the Digital Advice topic.

As was already stated before, there is no statistically confirmed connection between the perceived factor of Pleasance/Motivation and usage of the Digital Advice solution. In the previous paragraph, we presented the additional finding which is not in the contradiction with the rejection of the null hypothesis within the 2nd hypothesis of the main research, however, offers an additional dimension which further contributes to the ultimate goal of our thesis, explaining the role and importance of Digital Advice in Consumer behaviour.

Similar discoveries are presented within the other additional findings generated through the research. As can be seen in Table 28. and Table 29., there is a strong positive correlation between the perceived factor of Motivation/Pleasance connected to the online purchase and need for personalized advice within both, the category of Age and Gender. Moreover, in both of the cases were correlations between these two factors significant and therefore, we can further confirm the relationship between them. We can say that with increasing motivation towards the purchase, need for personalized advice increases within the age subgroup (18 – 24) and gender subgroup of females.

This finding is in the indirect contradiction with our initial assumption. As discussed extensively, we did not confirm our assumption. On contrary, we found a weak positive correlation. This finding is not directly connected to the usage of the solution but still contradicts with our initial assumption in such a substantial way that we should discuss potential reasons behind it.

Within the first group of Age, we might see that category online purchase of Notebook product category showing the highest factor of Motivation/Pleasance associated with the online purchase. We assume that respondents who belong to these group spend a considerable amount of their leisure time on their laptops and other electronic devices, therefore, indicate the highest factor of perceived Motivation connected to the Notebook product category is not surprising. What is, however, unexpected is the highest need for the personalized advice.

Same applies for the Gender category, where women show exactly the same pattern. It is critical to point out that majority of respondents 60% within the group 18 – 24, were females. Nevertheless, we might once again see that highest level of the perceived Pleasance of the online purchase is connected to the highest level of need for personalized advice.

The general reason might be that our understanding of motivation/pleasance factor and its potential impact on the Ask stage and purchase and searching activities within the decision-making process are simply not correct. As can be seen in both cases whether it is group of youngsters or females, with a greater motivation towards the category they would like to have a personized advice. We therefore, need to rethink our current understanding and make a more accurate statement that factor of Motivation and Pleasance connected to the online purchase might not necessarily reflect the consumers' knowledge. The purchase might be also strongly associated with the idea of product usage after the purchase. Additionally, this and previous findings discussing the factor of Motivation might question definition of Motivation factor defined by Kraigher-Krainer (2012).

Our previous findings clearly show that motivation in our initial understanding is not fully explanatory neither once being formulated as the Pleasance of the purchase. We shall once again look back to our theoretical base in Literature review, particularly to the Graph 1., presented by Solomon et al., (2006). Solomon in this graph connected amount of search with the product knowledge which in broader understanding does not have to be connected with the motivation towards the purchase. On contrary, product knowledge can stand as a self-explanatory metric. For example, if the consumer enjoys playing games on a high-end laptop which supports these games on a sufficient level, he or she might be motivated about the purchase of a better laptop but at the same time has no expertise in the topic.

Because of our previous discoveries and extra findings gathered through the research we would say that more than motivation the product knowledge might be an additional dimension which can shape a further explanation of the topic. Due to limited capabilities of our thesis, we would propose this finding for further discussion and additional research.

Digital Advice & Conversion Rate Differences

***Table 30**: Digital Advice & Conversion Rate Differences*

PRODUCTS		DA | AGE DIFFERENCE	CONVERSION RATE | AGE DIFFERENCE
Light Bulb	A	-0.3228	-0.0012
Blinds	B	-0.2436	0.0233
TV	C	-0.2343	-0.0370
Notebook	D	0.5991	0.1550
Printer	E	-0.6037	-0.0312
Mattress	F	-0.4709	0.0116
Washing Machine	G	-0.3601	0.0226
Bicycle	H	-0.3625	0.0328
Number of Sessions			52057
Number of Users		62	46870

Correlation - r	*0.882*
Significance ~ r	-

***Source:** Author's Survey & Digital Advice Technology adjusted Data | Author's Research*

The last thought-provoking discovery coming from the additional research is linked to the connection between the need for personalized advice and usage of the solution measured by the conversion rate. Discovery is based on the differences between the need for personalized advice and differences within the solution usage between two researched age groups, group A:18-24 and group B: 25-34.

We dedicated our 5th hypothesis to found out a connection between the perceived need for personalized advice in the digital environment and actual usage of the Digital Advice solution. We did not reject the null hypothesis and therefore, did not confirm our initial assumption. We however, through additional findings found out that both the need for Digital Advice and Conversion rate are positively correlated with the level of risk.

Despite we did not find direct connection, our additional finding of the indirect connection of perceived Risk factor, motivated us to explore further and compare differences between these metrics in the main group, but as well in the subgroups. This approach led us to this critical discovery between the age subgroups. We found out that there is a strong positive correlation between differences within the need for digital advice and its actual usage within these subgroups.

At this point, we cannot confirm the significance of this finding since this would be statistically incorrect. We shall, however, discuss an impact of this discovery on our research. There is the critical importance of the relationship to the 5th hypothesis. We found out that perception how the advisor will be needed can be actually mirrored on actual usage of the solution.

We manage to find strong correlation only within the subcategory of the Age what makes this discovery very specific. We might express finding as follows; the difference between the age groups (A, B) in the need for Digital Advice is positively correlated with the difference between the age groups (A,B) in its real usage and therefore, given the limitation of this finding there is a relationship between the need for Digital Advice and its usage. Once again this was only confirmed by one particular case within the Age subcategory.

As the last additional finding indicates, there is a way how to efficiently find out the need for Digital Advice solution among consumers. This might be leveraged by companies which want to be closer to their consumers by offering personalized advice where is needed. This and other findings with a direct connection to the academic and business sphere will be discussed within the section dedicated to Managerial and Academic recommendations.

5 DISCUSSION

5.1 LIMITATIONS OF THE THESIS

The Digital Advice Technology Provider discussed within our thesis, offers the highest standard of data security for its users and clients and therefore, we must eliminate any connection between data and the sources. Due to the strict security reasons which are connected to the data topic, we will not mention from which environments were data taken. Moreover, the data used are adjusted by a secret coefficient, to make sure it is not possible to misuse this data in any way. However, the principal understanding of the solution performance and connection between changing categories will still be valid and visible.

As mentioned in the Research Methodology section to fully understand the role and importance of the Digital Advice technology we decided to use another complementary dimension, in our case, presented by the ECID Grid – Risk and Motivation factor associated with the online purchase. It is important to understand that the ECID Grid serves only as an additional dimension to our research. Purpose of the ECID Grid questionnaire is to confirm our initial prediction of products location on the Grid and support our research through stimulating changing online purchase environment. Therefore, limitations such as smaller group of respondents who do not represent the whole population might occur.

5.2 MANAGERIAL & ACADEMIC RECOMMENDATIONS

Nowadays companies focus its internal resources on all-encompassing activities connected to the digital space. Along the way, they might experience many new challenges and slowly find out that they need to work with the consumers whose journey has never been so complex. If they want to succeed in today's world they must be ready to stabilize their position in the digital world in the first place. Nowadays, it is much more difficult for companies to compete with traditional weapons such as product quality or price. New battlefield seems to be shopping value and quality of the purchase process which once being enjoyable and seamless, might be the key winning factor in this competitive environment. On contrary, process which desires extensive cognitive effort can be a barrier to winning consumers.

For all the companies which are at least partly following this new business rule - Digital Advice concept is recently becoming more required. For all the businesses currently going through the digital transformation or already being well-established within this relatively new, yet very competitive and fast-changing environment, we would give following recommendations based on the theoretical but mainly practical findings from our research.

To efficiently employ Digital Advice concept, it is critical that company knows as much as possible about the behaviour of their consumers. Especially those who are or are likely to be part of their future customer base. What we have in mind, is mapping consumer journey among all possible channels and touchpoints, studying all of the stages mentioned within the five A's scheme and in a detailed way portray usual decision-making process during the

purchase. All these activities might help to find out, where are consumers usually struggling and where could company support them through the Digital Advice technology. Once having a broader picture of consumer journey, companies should continue in scanning their product categories to adapt and show their offering in the 'easy to process' way.

As we saw in the research, understanding of factors such as perceived level of Risk and Motivation associated with the purchase is crucial. Within our research, we confirmed initial assumption based on theoretical understanding of the topic about the significant relation between the perceived level of Risk factor connected to the online purchase and actual usage of the Digital Advice solution. Due to this fact, especially those companies which sell online product categories which purchase is associated with a higher level of Risk should reconsider their current effort in helping consumers find the best product/service, without asking them for overextending investment of their valuable time or cognitive resources.

Same as we did in the Findings section, companies might do the first step in the process by segmenting their product categories according to the ECID Grid theory. They can do it even more precisely and ask directly their own customers for the input. Once company gathers sufficient feedback from the questionnaire they can divide product categories accordingly and decide which product category could be a great fit for the Digital Advice concept. Alternatively, a company can do this process through effective monitoring of the website metrics such as a number of visits, bounce rate, conversion or more progressive tools such as heat maps. As we mentioned, not only Risk but also other metrics might affect the need for personalized advice. One of these metrics is a higher rate of total sessions among target consumers in product categories which where the traffic coming from these consumers is expected. For example, the subgroup of male consumers within the Electro category.

Once the right product categories are detected, companies might do another step and implement the Digital Advice technology. By helping a potential consumer during the purchase process, company might indirectly support its own profit activities. We mentioned multiple times term "usage of the solution", and it is essential to understand that we measure this term by the conversion rate metric. The conversation rate is in our case, based on so-called click-outs. The click-out means that consumer found a product which fits his or her needs. At the end, consumer arrives at the final destination which is usually product or service detail page. The difference is that consumer who is coming through the Digital Advice solution is thanks to the process described above, more aware of his or her needs and more educated about the product which he or she plans to buy. Such a lead is more likely to be converted into a buyer. If a consumer decides to proceed towards the purchase, the Digital Advice concept has not only turned a potential lead into a real buyer but possibly gain the consumer who at a certain point might come back, since his or her experience was thanks to the Digital Advice, seamless and more enjoyable.

Another recommendation on why and how to employ the Digital Advice concept is connected to the question of data. The Digital Advice concept stores events made by users and therefore, offers extensive data knowledge for the managerial decision-making process. In a certain way, Digital Advice beside generating and converting leads serves as a sophisticated questionnaire which can help the business understands its customers' needs. Therefore, the next option how to leverage this solution is to use it as a powerful marketing tool to gather data which in today's world becoming more valuable than oil. An additional possibility is to employ these interactions to the CRM system. The precise process and explanation are offered within the Literature review. Business possessing with such knowledge is one step closer to its consumers and one step ahead of its competitors. In general, data about the needs can be further used for the adaptation of the marketing communication, business strategy or even product development. We must once again highlight the topic of data security and add that the Digital Advice Provider we worked with does not store any personal data about concrete users and in general, meets standards of the highest regulated industries.

Last but not least, the dimension of Digital Advice concept which we would like to recommend and which was due to the limitation of our thesis ignored is Guided Trouble Shooting. Offering Digital Advice does not have to be connected only to the Guided Selling, but also to navigating users to the right solution of their problems. The Guided Troubleshooting is recommended to the companies which customer support department receives many interactions with their consumers on a daily basis. Since we do not focus on this part of Digital Advice, we will further continue with general suggestions for the Digital Advice and its subpart Guided Selling.

To sum up, we recommend using Digital Advice tool to all companies which:

- sell product/services categories which online purchase includes a higher level of Risk
- consumers, all current and potential ones' journey is complex and consists of multiple touchpoints
- consumers often seek personalized advice from the chat/telecommunication operators
- have a broad portfolio of consumers coming from various segments and for them specified product categories
- wish to increase conversion rate and online sales
- offer highly specialized and complex products or services
- want to find out more about their consumers' needs
- wish to prepare relevant database and knowledge for the future more sophisticated and conceptual strategies based on the machine learning and artificial intelligence

We believe that Digital Advice is the concept of the future form of shopping associates. The current form is rather simple but due to high demand, these solutions evolving at an incredibly fast pace. If companies want to offer personalized shopping experience to their customers and moreover get ready for more sophisticated solutions to come, we would like to encourage them to evaluate recommendations presented above.

We mentioned at the beginning of our thesis that Digital Advice as a topic is relatively new and yet not sufficiently described. Same can apply for its main subgroup the Guided Selling which as well lacks a proper description. Although, both Digital Advice and its subpart Guided Selling are being leveraged by the globally leading companies and are stable part of thousands of interactions with their consumers, there is still an absence of a proper understanding of solution from the academic perspective.

With our thesis, we have decided to bring the first insight coming from a real-life usage of this technology and significantly broaden the horizon of the current understanding. Thanks to this first step, we might already see that our extensive work covers only part of the problematic and further research of multiple dimensions related to the Digital Advice topic is required. In the following text, we offer suggestions for further research of the problematic and related dimensions.

The most important dimension which we covered only briefly is a dimension of the consumer's specifics. As we discussed in Literature review, there are many other factors which can have an impact on the technology usage. For example, external influences such as culture or internal ones such as personality. Moreover, factor of self-concept and lifestyle might also provide additional information to the research. All of these additional dimensions might be influenced by the previous experience with the Digital Advice solution or other similar concepts, therefore, previous experience is another critical aspect which would be a suitable candidate for the further research.

Another additional academic input would be needed in the field of product category relevancy for different subgroups of users and its impact on the Digital Advice role. As we witnessed during our research the impact of Genders on Digital solution role were only visible through in the light of creating additional product category subgroups. The difference between Genders within a particular product category subgroup was confirmed within the Electro product category. We believe that while exploring bigger datasets of various product categories and subcategories, we might further develop this rough finding to a very interesting theory which importance could further enrich academic and business sphere.

At this point, a proper qualitative and extensive quantitative research seems to be the best option to further describe the topic and to better understand hidden reasons and incentives connected to the interaction between consumers and Digital Advice technology.

Besides these recommendations, we will further stay within the academic sphere and discuss the core of consumer definition. While having in hand findings from our research and strong theoretical base within this topic, we shall further discuss one of the most important questions concerning the question of rationality & irrationality of modern consumers.

5.3 RATIONALITY, IRRATIONALITY AND THE FUTURE OF DIGITAL ADVICE

Question about irrationality and rationality was extensively discussed within Literature review and has a major influence on author's thinking about the future research and practical usage of the technology.

This is almost a philosophical question which has been discussed throughout the multiple disciplines such as Psychology, Philosophy and Economics. Since the classic understanding of humans as rational decision makers partly failed in some crucial cases, market and academic sphere reflected this fact and offer an additional alternative theory based on the irrationality of the decision-makers. As Schwarz (2004) mentioned, humans are biologically unprepared for the number and complexity of choices they face every day. Moreover, Hsee et al., (2003) added that despite the lack of time resources and limited cognitive capabilities, it seems natural that majority of consumers actually wants to do rational choices and ultimately wants to become the rational decision makers.

Currently, we are standing in the year 2017 and academic sphere is moving closer to the theory of irrational decision makers and no one properly reflects the completely new digital environment consumers start to live in. The truth is, that we are dealing with an entirely new definition of consumers which might move boundaries of complexity to a whole new level. The consumer is evolving through the usage of the technology and we are confident to say that usage of the newest ICTs in everyday life, is only the beginning of revolution within the human & technology cooperation or potentially integration.

In the Literature review, we mentioned similar thoughts about the alliance between machine and a human called 'consumer-computer system'. Concept and idea were introduced by Mishra & Olshavsky (2005) and according to the authors, this alliance is the key to unlock consumer's rationality. The interaction between consumer and Digital Advice solution is exactly a bright example of how this concept might work in the real-life. The consumer might easily without any knowledge about a particular product category follow the best recommendation by the technology and do a choice which would a rational decision maker do. Technology allows the consumer to jump over many shortcomings along the way such as the Paradox of choice or choosing the most appealing product according to a feature which he or she at the end does not even consider to be important. Digital Advice technology gives consumers the power to accurately filter thousands of SKUs according to their needs and choose the best product according to the hard attributes closest to the economic calculus. It is critical to mention that we are not describing a concept which is just theoretical but the interaction between the consumer and technology which is currently used by thousands of users in the real-life Decision-making processes and further reflected within our research.

At this point, it is the right time to ask again who consumer really is and how shall we define its characteristics and predict his or her future steps. Thanks to the topic of our thesis we explored the whole new elements which as we believe will be the critical parts of the future understanding of consumer. With increasing collaboration between technology & consumers

which is actually most visible in the field of personal agents (presented by solutions as Google Home, Alexa, Cortana, Siri, etc.) companies might be shortly dealing with more rational, evolved buyers characterized by their connection to the technology and immediate knowledge in hand. This could have a major impact not only on this particular topic but on the field of Marketing, Sales and the Business as such. Most of the current marketing concepts would need to be adapted to reflect specifics of these new consumers and the way how they make decisions and interact with such technologies. The Digital Advice technology is a great example how the consumer who in general, wants to behave as a rational decision maker but do not have the capability to process all information, uses the technology to jump over this barrier. This assumption might serve not only for the academic but as well for the practical purposes. Companies can start thinking about how to employ such a tool or additional support into their product categories. We already know that product categories where the purchase is associated with a higher level of risk would be a great start.

To sum up our previous findings from the Literature review and Research, we predict that a new concept within the Marketing will occur. Concept which will understand consumer as an entity enriched or even integrated within the technology. New entity which will be simultaneously connected and seeking for personalized conversation on every channel and touchpoint. Moreover, able to proceed more complex task such as filter an extensive amount of information according to its relevancy. Companies which will personalize this conversation and thorough the understanding of consumers get closer to them, will have a better chance to win. The user ability to control this process will be crucial. Simple name which would sump up our thoughts coming from a deeper understanding of the role of Digital Advice within the consumer behaviour and theoretical knowledge is the Trans-Consumer theory. The Digital Advice in the more sophisticated form, for example in the form of voice would be then used by this new entity.

Only future will reveal whether our assumption based on our theoretical knowledge and research is right and whether as we would call Trans-Consumer theory starts a small revolution in the field of Marketing. What we know for sure, however, is the fact that we are living in exciting times where technology changing the understanding of almost everything and where the term Sci-Fi is becoming more or less relative.

6 CONCLUSION

The ultimate goal of our thesis was to describe the role of Digital Advice in consumer behaviour within the changing environment of various product categories and with their purchase associated factors of Risk and Motivation. An additional aim was to establish how other dimensions such as Gender or Age influence the role of Digital Advice within the specified consumer behaviour during the online purchase.

Since there is only a limited amount of profound and trustworthy Literature about this topic, especially due to its relative novelty and need of the unique data, we have decided to build fundaments of the topic through the extensive Literature review and unique research. The Literature review offers broad knowledge from various disciplines and new findings coming from the recently executed experiments. It follows the goal of our thesis and offers a theoretical definition of the Digital Advice role within consumer behaviour with a focus on the online environment. We pointed out major stages where the Digital Advice solution from the theoretical perspective plays a major role and offer descriptions of other elements which might influence its position within the consumer behaviour.

The backbone of our thesis is the quantitative research built on the worldwide unique data from the global technology leader in the Digital Advice field. Within our research, we were operating with the total of 52 057 real-life interactions from 46 870 users. Most important finding from our research was the significant correlation between the perceived factor of Risk associated with the online purchase and usage of the Digital Advice technology, measured through the conversion rate. Due to this finding, we have managed to position the Digital Advice role specifically to the product categories which online purchase is associated with a higher level of perceived Risk. Also, other non-confirmed assumptions of dependency between the factors of Gender & Age contributed to our ultimate goal, description of the Digital Advice role.

Lack of confirmation of some of the initial assumptions motivated us to dig deeper. We detected the anomalies which can be seen in the Gender and Age subgroups. Moreover, we managed to confirm one of those anomalies, particularly within the subgroup of Males and their interactions with the Electro product subcategory. With the limited number of product categories and on the edge of statistical correctness we partly proved that there is another dimension which might significantly influence the role of Digital Advice, the relevancy of the product category for the target group.

Moreover, within the section of Additional findings, we explored how the perceived Motivation of the online purchase is connected to the average time spent within the advisor or how the perceived need for personalized advice might be reflected within the actual usage of the solution. The section of Additional findings illustrates how complex this topic might be and how many other factors might influence the understanding of the role Digital Advice role in consumer behaviour.

Through the first research of its kind, we managed to connect data of thousands of the real-life interactions made during the online purchase decision processes with theoretical

assumptions and additional dimension based on the standardized theoretical survey. Our research was the key element which fulfilled the goal of this thesis.

Based on our findings, we offered recommendations on why, when, where and how should companies implement the Digital Advice concept within their digital marketing strategy. Moreover, the concrete suggestions for the further academic research were presented.

The thesis fulfilled all its goals and additionally described other unexplored dimensions which shaped the understanding of the Digital Advice role in consumer behaviour. Our findings did not enrich only topic dedicated to Digital Advice field but offered valuable knowledge about the interaction between consumer and technology which can be leveraged in multiple related disciplines. The special part of the thesis was dedicated to the future development of the human & technology cooperation in the light of Digital Advice topic. Upon the extensive knowledge from the Literature review and our research, sketch of the Trans-Consumer theory was offered.

The initial question of ‘why do people do what they do?’ seems to go far behind the limitation of this topic, however, as our thesis hinted, the technology aspect might be the one that helps us find or shape the right answer.

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LIST OF APPENDICES

***Apendix 1**: ECID Grid Questionnaire*

Use the following scale to describe your attitude to the purchase of product/service	MOT (cFAN)	RISK (cFAN)	Indicator Reliability
1. You can't really go wrong … You can easily make a mistake		0.71	0.51
2. All things considered, you stand to lose a lot for various reasons … All things considered, you can't really lose much**		0.83	0.69
3. Regardless of what I choose, it has considerable consequences … Regardless of what I choose, it has hardly any consequences**		0.79	0.62
4. The wrong choice would be very annoying … The wrong choice would not be a major problem **		0.74	0.55
5. It's not my idea of fun … It's great fun	0.78		0.61
6. Pleasant … Unpleasant **	0.87		0.76
7. Irritating … Satisfying	0.81		0.65
8. I like doing it … It has to be done**	0.79		0.62
Average variance explained	66 %	59 %	
Cronbach's ∝	0.88	0.85	
Test-Retest-Reliability	0.83	0.82	
Factor Intercorrelation	0.000		
MOT-RISK-Intercorrelation	0.004		

* Items 1-4 are summed up to a "Motivation" factor (MOT); items 5-8 are summed up to a "Perceived Risk" factor (RISK).

** Polarity has to be reversed before summing up scores. It is recommended to mix up the eight items and their polarity in order to avoid undesired demand effects.

***Source:** Kraigher-Krainer, (2012, p.17)*

***Apendix 2**:ECID Grid Questionnaire Introduction*

Questionnaire Introduction

Thanks for taking this questionnaire!

Purpose of this short study is to localize the products according to the attitude to ONLINE purchase of product/service. It consists of 9 Questions and will take you approximately 10 minutes of your time.

In every question, you will be confronted with two opposite claims. You have to choose your preference on a scale from 1(claim x) to 7 (claim y). For example, if you absolutely agree with the claim x, you would choose 1 point, if you somehow agree with the claim x you would choose 2, if you are neutral about the claims x, y - you would choose 4. Same applies for the claim y, just in reverse order.

Beneath every question, you will find set of products - 10 in total.

Remember: All the questions are about your attitude to the ONLINE purchase. Keep this in mind while imaging different scenarios.

**this questionnaire is anonymous*

***Source:** Author's Survey*